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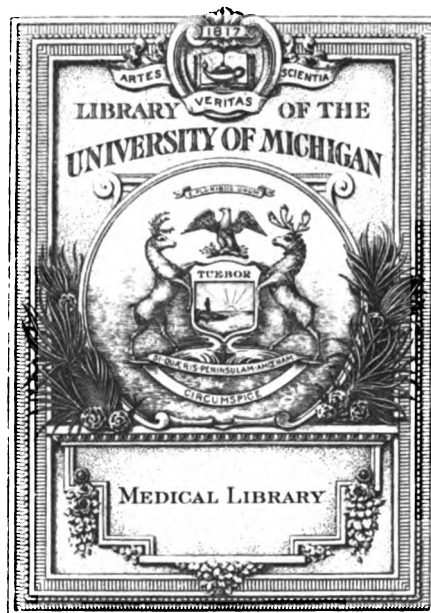
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THE AMERICAN JOURNAL OF UROLOGY

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THE CLINICAL SIGNIFICANCE OF URETHROSCOPY

By PROF. F. M. OBERLANDER, Dresden, Germany.

(With two colored plates)

I. HISTORICAL AND GENERAL CONSIDERATIONS.

The attempts made to render the urethra visible to the examiner, and thus to study the diseases of the mucosa and its subjacent tissues, date back to the middle of the last century. DeGormend was the pioneer; in 1850 Fürstenheim of Berlin and Ebermann of St. Petersburg followed in his footsteps. Until 1875 to 1877, no further advances were made. At this period I urged Max Nitze, whose assistant I then was, in the Dresden Municipal Hospital, to improve the urethroscope as well as the cystoscope. The latter, thitherto, had consumed his entire attention. The resultant implement was complicated, although serviceable. After a few preliminary efforts, Joseph Leiter of Vienna manufactured a good urethroscope for me, and it was with this instrument that I carried out my studies in the early eighties. Casper's device appeared a little later. Until the days of Nitze all urethrosopes, notably those of Casper and Gruenfeld, obtained their illumination from an extra-urethral source and reflected into the urethra. Nitze was the first to illuminate from within.

The reflected light method has been practically abandoned, but one should still rely upon that instrument with which one is most familiar, and with which most accurate diagnosis may be accomplished. Within the past decade noteworthy modifications have been devised. Thus the value of the urethroscope has been established, and its scientific place among worthy diagnostic instruments has become unchallenged.

The necessity of examining the urethra needs no verbal defense. It is as essential as the careful examination of any diseased part of the human body. The only question is, why did it take so long to establish such a need? In the first place the specialty of urology did not develop until after the discovery of the urethroscope. In the second place, most of the acute diseases of the urethra can be apparently cured without careful examination. A large number of chronic maladies remains, however, which demands close study, and in which one urethroscopic examination frequently is insufficient. This number vastly exceeds that of the bladder and kidney diseases in which a cystoscopy is considered indispensable.

Another obstacle in the path of the development of urethroscopy is the difficulty of the technique. This is due to the small area presented to the eye for study, as the various portions of the diseased urethra come into view. To reconstruct the pathological picture from these fragmentary elements requires more experience than any similar method of examination. With practice, however, this difficulty diminishes, for after all there are only certain details to reckon with, and one rapidly masters them.

Valentine of New York introduced a simple improvement in the lighting mechanism, by substituting a small mignon lamp for the platinum wire. The latter, however, presented the pathological features in their natural shades and aspects. Thirty years ago such lamps had not been discovered. They permit of the use of a street current, while the platinum wires were worked by a large galvanic battery. A. Cohn of Berlin proved that the platinum wire yielded the best light. To-day the difficulties of urethroscopy of thirty years ago seem incredible. I say this less to arrogate unto the pioneers undue credit, than to illustrate the ease with which an equipment for urethral study may be assembled at the present time.

Goldschmidt's discovery in recent years constitutes a more valuable asset than the above. This consists of water cooling not through small tubes at each side of the lamp, but by means of freely circulating fluid which with the posterior urethroscope enters the posterior urethra, and flows into the bladder while with the anterior urethroscope it escapes at the meatus. A small magnifying glass makes the field to be studied somewhat clearer in its details. The disadvantages of this instrument are that the water and magnifying glass tend to diminish the

differences in color that demark pathological from healthy mucosa. This limits the student's ability to recognize slight variations from the normal. The finer nuances are best brought out by the platinum wire light. Another disadvantage, preëminently as regards the anterior urethra, is the great calibre of the instrument. For naturally narrow urethrae dilatation must precede the use of Goldschmidt's appliance, or it may be useless even after dilatation. Diseased urethrae must be dilated in any case before they can be studied. Nevertheless this instrument is indispensable to the urologist, and I do not wish to underestimate its value. It was made with utmost scientific circumspection, and local instrumental treatment of the posterior urethra and pars prostatica could not, in its broader aspects, have developed but for it.

II. GENERAL CONSIDERATIONS CONCERNING ANTERIOR URETHROSCOPY.

The rules I adopt are these: The tubes, which must be of silver, are 16cm long, cut obliquely in front, and carrying a blunt catch anteriorly to clutch the lamp carrier. The latter is equipped with a slide contact. The tubes range from 21 to 31 Charr. in diameter. Apparently narrow urethrae will usually admit a number 21, but it is advisable, in general, to use nothing smaller than a 23. Furthermore urethrae small to the eye are frequently capable of surprising dilatation, although the infiltrations so often due to chronic gonorrhea are annoying because of their inelasticity. In such cases introduction of the urethroscope should follow gradual dilation by means of conical bougies. Dr. Rudolf Schmidt of Dresden has devised a mechanical dilator for the purpose, which the patient is able to hold while it is being adjusted. The best lubricant is boroglycerin, as tragacanth often stimulates a muco-purulent discharge. The tube is inserted to the bulb, and the urethra examined from behind forward. Sensitive patients often need cocaine which, although it has the disadvantage of rendering the mucosa anemic, is necessary where dilatation or topical treatment are indicated.

The endoscoped field must be constantly cleansed with cotton tampons. The most disturbing factor are hemorrhages which obscure the area under scrutiny. The highest calibration possible should be that of the tube chosen for the examination. After the successful passage of the tube, the lamp is introduced. A light of such intensity as to dazzle is to be avoided, and the

obliquely situated platinum loop should itself never be visible during examination. When a mignon lamp is preferred the illumination must be dimmed.

III. THE URETHROSCOPE PICTURE OF THE ANTERIOR URETHRA.

The first object the beginner discerns is the mignon lamp, while the platinum loop possesses the virtue of being entirely concealed. The latter, on the other hand, has certain disadvantages, whereas in using the former the examiner readily learns how to exclude its presence from the picture, for in gradually withdrawing the tube he gets a perfect view of the mucosa converging distally like a funnel. In order to appreciate the pathological pictures of the anterior urethra I must insert a brief description of the normal. The following facts must be borne in mind in order to make an exact diagnosis:

1. Color: This may be pale, medium or deep red.
2. Surface: Shining and smooth, faintly shining, or dull and uneven.
3. The appearance of the glands, crypts, secretion and scars.
4. The folds of the mucosa and their gradual concentric convergence into the so-called central figure.

As in the case of the mouth and pharynx, the healthy urethral mucosa may have several tints, as enumerated above. When anemic it is pale red with yellowish subtones and streaks. When somewhat redder the yellowish patches are less intense and are blurred, and this state is that most frequently encountered. Finally a deep red surface may be seen which still is within the normal scale and may be looked upon as a hyperemia rather than as a pathological condition. The difference between a normal irritated mucosa and a hyperemic one, a beginner would have difficulty in determining, but for other characteristics.

All mucous surfaces when chronically diseased lose their sheen, and become dull. Any such changes denote a healed, or a still active superficial or deep pathological process. This should never be forgotten as it is a point of great importance. In the cavernous urethra when the membrane is normal, the openings of morgagni's crypts may be seen. They are small pin point depressions with slightly convex margins. In the healthy state no secretion should be observed exuding from them. The apertures of Littre's glands are invisible in the normal state. When

they may be observed in groups, they indicate active or cured disease.

The extent of the field under examination depends upon the relation between the diameter of the tube and that of the urethra, and it must always be remembered that the meatus represents the narrowest portion of the urethral lumen while the urethra varies greatly in circumference in its different parts. Thus the mucosa will appear different at different points. To simplify this matter the anterior urethra is subdivided into the portion of the bulb, the mid-area or that known as the pars pendula or cavernosa, and finally the glandular portion. The bulbous portion is characterized by a folded floor and a horizontally tense roof. The pendulous portion is denoted by the most accurately developed funnel-like configuration of the mucosa. Five or six concentric folds may be seen shrinking distally into the closed central figure. These characteristics are of great clinical significance. The glandular portion is the shortest. No sudden transformation from one portion to another exists. The mucosa of the glandular portion is even in surface and the folds are less marked, the central figure slightly patulous.

IV. CLINICAL GENERALITIES.

The problems presented are whether the patient has gonorrhea or some other infection. This can primarily be determined by endoscopy, and confirmed by bacteriological study.

Should the case be one of gonorrhea the patient is liable to all of the complications that this type of chronic urethritis may cause. In the second place we must consider the question of infectiousness. During this late stage of chronic gonorrhea the disease need not be transmitted in a florid form but in one that I term "venereal catarrh." This is a purulent inflammation of the vagina, urethra and adnexa, the severity of which will depend upon the resistance of the patient's mucous membrane.

Moreover it is the duty of the physician to determine by means of the endoscope the recession of the disease in response to treatment. It must be determined whether the cure is progressing evenly, rapidly and generally, or whether certain patches of the diseased area are obstinate in their response, a usual feature where local infiltrations are present. Finally the question of a complete cure must be determined, as well as whether recurrences are present in a previously alleged cure.

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In other words, the physician is confronted by three considerations:

1. The diagnosis.
2. The progress of the cure.
3. The extent and permanency of the cure.

The eye, aided by the urethroscope, is the best means of determining these facts. Corroboration may be sought in the microscope. But since the picture is a variable, and at best an inexact one, the picture should be invoked merely as an aid, and not as the final tribunal. Gonococci may be missed microscopically day after day, and the patient still have gonorrhea and transmit the disease. This is a common experience. A urologist who disregards the presence of other pyogenic organisms or who depends upon microscopy alone, and has not studied the mucosa by means of the endoscope is sadly limited in his diagnostic ability. Nor can he follow the progress of recovery, determine which limited portions of the urethra remain diseased, where the secretion gathers, etc. Where no secretion exists there is no value in the microscope, for urinary examination is unreliable, and the shreds lose their leucocytes through the force of the urinary stream, and above all lose the adherent epithelia and micro-organisms.

The endoscope is more certain than the microscope.

V. ENDOSCOPY OF THE MALE ANTERIOR GONORRHEAL URETHRA.

Need of brevity excludes a detailed description of the endoscopic appearance of a chronically inflamed urethra caused by the Neisserian organism. If the acute inflammation, in disappearing, leaves behind a secretion which persists for 6 or 8 weeks, endoscopy is indicated. As early as this, infiltrations in the pars glandularis and first third of the pendulous portion are beginning to develop.

The urethroscope is of value in a subacute or chronic gonorrhea even of as short a duration as from two to ten months. The mildest type is subacute rather than chronic, and should be regarded as a mucous urethritis. The pathological changes are limited to the mucous membrane and subjacent tissue. They consist of loose collections of small cells forming circumscribed infiltrations. The endoscopic picture is characterized by an increased "shining" of the mucous membrane, deep red coloration,

inflamed crypts and slightly hemorrhagic patches. Cases with vegetations belong in this group.

These cases are suspicious, at least, of gonorrhea. They give rise neither to purulent nor mucopurulent secretion. The presence of gonococci is not inavailable; often they are found for the first time in secretion arising after dilatation, then demonstrating the latency and potential infectiousness of the disease. I am in a position, as are all other urologists, to amplify this point by clinical illustrations.

The still more chronic cases of gonorrhea, those more advanced, present essentially similar pathological characteristics. The foci are denser and more extensive and the round cells tend to be replaced by fibrous connective tissue, and as they approach the surface, tend to include the crypts and glands. The inflamed glands become hypertrophic. This type is known as the "glandular type," and the apertures of the glands show all stages of inflammation and cicatrization. The arrangement is always that of a patch of inflammation, most complete centrally.

Still more advanced cases, although maintaining the same fundamental histological features, are denoted by more extensive scar tissue formation, simulating fibrous new growths. Their mass may become such that the passage of the instrument is out of the question. All variations in size and arrangement of such areas are possible, and they may be intermingled with patches of normal mucosa. In extreme cases the tube can not enter the orifice of the meatus.

It is impossible to determine whether these developments are "predestined," or due to negligence or incorrect therapy. A certain tendency to this result may be assumed. The infiltration is always in patches, as any one experienced in endoscopy will testify. Even the non-contracted portions of the urethra do not seem normal to the eye, but show infiltrations in various stages. The older the process, the more massive the bundles of fibrous tissue.

In the course of time the small-celled infiltrations vanish and the scar-like character of the infiltrations grow more pronounced. This is especially true of the so-called callous strictures. Urinary fistulae in the stricture cases are of surgical but not endoscopic interest.

The openings of Littre's glands may open into the diseased mucosa, as described, or be separated from it by a layer of connective tissue. If the latter is thin, it may, although it rarely

does, disappear. If it is thick, there is desquamation, occlusion and stagnation of the secretion in the glands. Such glands feel like irregularly nodular scars about the dilated urethra. Through the endoscope they are seen as dull, scaling eminences, encroaching upon the lumen of the urethra. The central figure is patulous. Before instrumental treatment adherent scales may be seen (urethritis sicca desquamativa). There are also mixed types.

The columna epithelium may vanish and be replaced by pavement cells. Such patches look like gray spots through the endoscope. (Posner's Pachydermia.) Finally there are singular white patches to be seen, resembling psoriasis (psoriasis mucosae urethrae). Gummata not uncommonly are found near the glans and when they break down give rise to urethral fistulae, of no interest to the endoscopist.

Paraurethral fistulae, however, are of more interest. They too are situated near the glans. At their internal end a drop of secretion is found. They differ from fistulae caused by strictures and yield to electrolysis.

Since endoscopy is of great value where therapeutic dilatation is indicated, I should like to refer to this subject briefly, as the method was introduced into practice by me. Dilatation brings into prominence the infiltrations, and exaggerates the small strands among them establishing their continuity. Starting with these strands, resorption takes place. When these strands dominate the picture the treatment takes longer and the increase in the size of the sounds must be more gradual.

Regarding dilators, I began their construction 25 years ago. My instrument was a two-branched one. Kollmann has devised one with four branches. In general the latter is to be preferred in the anterior urethra. In the bulbous portion mine is preferable. The introduction should extend to the membranous portion, the instrument held at an angle of 45° . Thus the bulbous portion is reached in a manner impossible where a smaller instrument is employed. The results are invariably good. I wish to emphasize the need of careful supervision and the necessity of using only my instrument, whenever infiltrations develop in the bulb.

All dilatation, by whatever method, should be watched through the endoscope, and further therapy thus regulated,—a further proof of the endoscope's diagnostic and therapeutic indispensableness.

The Fessenden Otis instrument, although antedating mine, was really based upon my previous scientific studies of the principles of dilatation, based upon my urethroscopic work. His instrument depended upon a urethrometer with which he determined the length of the stricture, followed by a concealed knife with which he cut it. He knew where but not how he cut. Nor could he be sure whether the infiltration was above or below. He may have missed the densest areas. He introduced his knife in the dark and may have missed the narrowest parts. No cure of the infiltrations was possible in this way, and the chronic etiological gonorrhea persisted. I too had devised a method by which the knife could be introduced with the aid of illumination. Kollmann and Dommer also had similar methods. All have been abandoned. As to gonorrhea of the female urethra little need be said, as this is not within the urologist's province. Infiltrations do not occur.

The endoscope picture of urethritis mucosa is the same. I have already published observations upon chronic gonorrhea as seen in prostitutes. They are of no interest from the urethroscopist's standpoint.

VI. ENDOSCOPIC IN NON-GONORRHEAL AFFECTIONS OF THE ANTERIOR URETHRA.

This subject is of interest in differential diagnosis; the condition is less uncommon than is usually assumed. Caustics are at times introduced by patients when they imagine the presence of gonorrhea, and before consulting a physician. Phenol, sublimate, vinegar, hydrochlorate acid, sulphuric acid, etc., have been used. These cases present flat, hemorrhagic swellings, visible when it is possible to pass a tube. Traumatic strictures also cause a definite picture. They are characterized by normal tissue except at the site of injury. The lesions generally occur in the membranous portion. Anteriorly there are projections in the lumen presenting an obstacle which, if possible without causing bleeding, reveals a patch of deep red mucosa, crossed by elevated scar tissue. The area covered by the injury is usually greater than one would imagine, and is situated, as a rule, in the membranous portion.

The rarest malady of the mucosa of the urethra is carcinoma. During forty years I have seen it but three times, and always in patients with gonorrhea. The first indication was urethral hemorrhage. The growth macroscopically in no wise

differed from the ordinary papiloma. Only the accompanying symptoms, the histological examination and, finally, the patient's age, established the diagnosis. There were internal but no external metastases in all the cases. In one instance by means of an extensive incision, recurrences were postponed for four years. The other two cases consulted me too late and were inoperable. I am convinced that carcinoma is more frequent than my experience would indicate.

Concerning endoscopy in tuberculosis of the anterior urethra, I wish to make the following statements: True tuberculosis does not occur, or rather, I have not seen it. On the other hand, accompanying tuberculosis of the posterior urethra, prostate, testes and seminal vesicles, two types of concomitant inflammation may be found. The one is an even deep red, smooth swelling, irregularly studded with small, warty elevations. Less frequently we find the second type which is not yet very well understood. It consists of smooth swellings in the urethral mucosa. They are irregular in outline and remotely suggest chemical injuries without erosions. Passage of instruments and micturition are painful. Local treatment, excepting of the mildest kind, is not only useless but positively harmful. I have not been able to determine the value of tuberculin treatment. In the posterior urethra, tubercular granulomata occur.

A word as to diseases of the urethral mucous membrane caused by the constant use of the catheter is here in place. Frequently mucopurulent catarrhs are caused by faulty asepsis in the passage of the catheter. Such a secretion contains enormous quantities of bacteria of all varieties. By means of the endoscope, an even swelling is seen dotted here and there by inflamed groups of glands. In more advanced cases, dry inflammations and swellings as in chronic gonorrhea are found. There is desquamation and constriction of the lumen of the urethra, so that the patient himself is often compelled to select a narrower catheter.

When the urine is persistently admixed with strong concentrations of the salts of uric and phosphoric acid, less frequently with oxalic acid, the mucosa of the anterior urethra may become inflamed. This is shown through the endoscope, as patches of deep red, glistening mucous membrane.

VII. FURTHER REMARKS UPON THE CLINICAL SIGNIFICANCE OF URETHROSCOPY IN NEGLECTED CASES OF CHRONIC GONORRHEA AND OTHER VARIETIES OF URETHRAL DISEASE.

There is a large number of diseases of sexual nature *sui generis*. They may be traced back to infectious and non-infectious sources. In the latter cases persistent coitus interruptus plays a great rôle as well as habitual masturbation and other venereal excesses. Such diseases begin usually as a chronic inflammation, prostatic congestion which extends to the prostatic urethra and to the trigonum in the bladder. If a patient has ever had gonorrhea, evidences of it usually are found in the anterior urethra.

Such traces of the old disease acquire a greater significance, since they form the starting points of posterior urethral recurrences and diseases of the adnexa. Such may be the case not only when the adnexa were originally involved during the acute stage, but they may arise for the first time during the chronic stage even though they have given no symptoms for years during which they may have fully developed, before the urologist has had an opportunity to cope with them. If all cases of chronic prostatitis and posterior urethritis, impotence or prostatic neuroses, in fact any disease following chronic gonorrhea, were endoscoped, the first thing to be found would usually be infiltrations in the anterior urethra. The one and only cause of any of these obstinate and annoying conditions is neglect of accurate endoscopy and the consequent neglect of the proper and very simple treatment. It would be extreme to state that all chronic gonorrheal patients acquire the diseases enumerated. Nevertheless I wish to emphasize the correlation between these diseases and diseases of the anterior urethra. When a gonorrhea is allowed to exist unhealed for a long time, the Neisser organism gains a firm foothold in the innumerable small canals of the genital apparatus. The slighter symptoms which may be overlooked finally assume such severity that the patient is forced to consult a physician. This in itself is enough to justify the use of the urethroscope and establish its clinical value.

A retrospective survey of my forty years of activity clearly emphasize the great strides made in our art during this time. In those days the course of gonorrhea was different from now. Cystitis seldom was escaped; strictures, practically never. Asepsis alone can not account for the change, although the

discovery of the gonococcus certainly threw great light upon the subject. The practical questions, however, were solved only by the endoscope, and it is a great pity that this instrument, even now, is so little used.

The course of gonorrhea to-day runs thus: Its virulence, among prostitutes and bachelors, at least in Germany, appears to have diminished during the past fifteen years. This is presumably due to the greater activity of police physicians, greater cleanliness on the part of prostitutes, and finally to the improved treatment of both acute and chronic gonorrhea. *Pari passu* with the decreased severity of genital complications, the nervous complications have increased in severity. This too is due to neglect of endoscopy. Neglected foci in the posterior urethra and prostate, inconsiderable in themselves, still constitute an irritable point of departure for the peripheral nervous manifestations of the sacral and coccygeal plexi. These in turn often affect deleteriously the patient's entire nervous and psychic mechanism.

I cannot conclude these remarks upon the effect of chronic gonorrhea upon general health without indicating a fact which, although not yet scientifically established, to me seems unquestionable. I refer to the genesis of renal disease and long standing chronic maladies of the genito-urinary system. In particular I refer to chronic purulent prostatitis almost invariably arising from chronic gonorrhea. Obviously the prostate is, in a certain sense, a depot for pus and pyogenic organisms which may infect the bladder, ureters and pelvis of the kidneys; thus it is clear that diseases of the kidney itself must be closely associated with such a process. In fact, I have frequently enough seen such extension. Do we not often encounter the combined picture of severe strictures, pyonephrosis and pyelonephritis?

If this is the case, why may not even milder conditions in the lower divisions of the genito-urinary tract give rise to the same results? There are no good grounds for doubting such a fact. This, however, is scarcely the place to dilate upon the above question.

It is an error to regard a case as non-infectious when the microscope reveals no more organisms. A patient is not well until the endoscope proves him so, and his urine is clear.

Although such a course of treatment is prolonged, it is no more so than that of chronic diseases of other organs, as, for instance, respiratory and digestive diseases, or ailments of the

Fig. 1

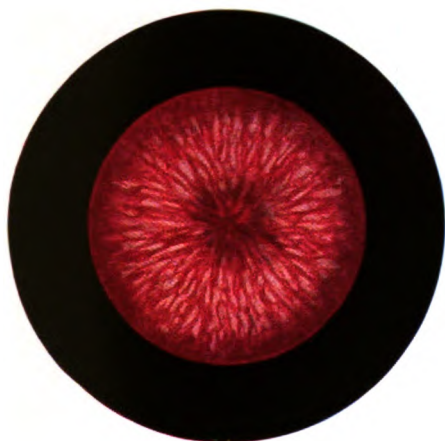


Fig. 2



Fig. 3



Fig. 4



Fig. 5



Fig. 6



Fig. 7

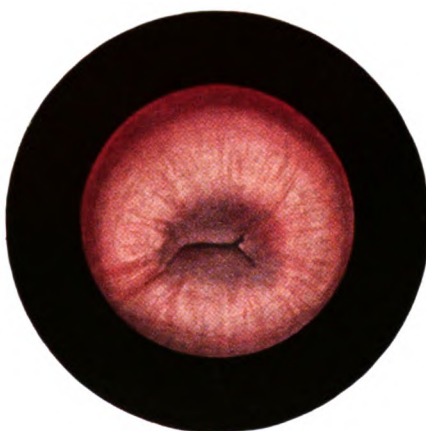


Fig. 8



Fig. 9



Fig. 10



organs of special sight. The therapy in such illnesses often covers years with slight hope of benefit and includes dieting, sojourns in spas and frequent consultations.

It is not my object to contrast the importance of other organs with that of the urethra as regards the life and happiness of the patient. On the other hand, results are quicker and more certain here. Until now neglect of the urethra was taken as a matter of course.

I do not demand that heads of hospital services learn this art. Young urologists, who do not operate constantly, will find leisure to acquire such perfection. In attempting to develop a practice, expertness in this subject is imperative, or he will not have mastered the fundamentals of his subject, and will not obtain the best results possible in treatment. This is the clinical significance of urethroscopy.

RESUMÉ

Daily experience teaches us that as a diagnostic aid the urethroscope is superior to the microscope in chronic urethral ailments.

The urethroscope is the best aid in diagnosis, treatment, and determination of cure in all diseases of the lower urinary passages and adnexa, whether due to infection or not.

EXPLANATION OF PLATES

FIGURE 1. Middle of pendulous portion of urethra with well developed vascular network and closed central figure.

FIGURE 2. Bulbous portion with recent inflammation. Instead of fine folds, four coarse elevations, arising from the margin of the central figure, are seen.

FIGURE 3. Middle of pendulous portion. No extensive, coarse pathological changes are present on the surface; upon withdrawal of the tube a small plug of pus is seen to exude from a pocket, the walls of which are infiltrated. Above this lies an open crypt of Morgagni. This contains no pus. The slightly opened central figure denotes the existence of an infiltration.

FIGURE 4. A soft infiltration posteriorly in the pars pendula. The mucosa is succulent and uneven. Upward and to the left a tense follicle is seen, filled with fluid.

FIGURE 5. Middle of pendulous portion in the course of healing following instrumentation. The last traces of the disappearing gonorrhea are illustrated by a white spot (Oberländer's "dead scar") and a general coarseness of the folds. The

central figure is represented as a horizontal cleft with four coarse folds.

FIGURE 6. Middle of pars pendula. An extremely hard infiltration which causes the urethra to appear as a rigid tube with a tunnel-like, gaping central figure. As the result of persistent dilatation new vessels begin to appear. Above and to the left a crypt of Morgagni.

FIGURE 7. Entrance to a stricture in the rear portion of the pendulous part. The central figure seems but a horizontal slit and is almost free of folds.

FIGURE 8. Papilloma upon a congested but otherwise normal mucous membrane in the bulbar portion.

FIGURE 9. Normal colliculus seminalis with a portion of the Crista. The lateral walls are smooth (Goldschmidt).

FIGURE 10. Hypertrophic colliculus upon the summit of which is the irregular entrance to the sinus pocularis. The lateral urethral walls are very irregular. At the lowest portion the crista may be seen (Goldschmidt).

THE DIAGNOSIS OF HEMORRHAGE IN HYDRONEPHROSIS

By PAUL MARCHAIS, M.D., Névers, France.

ALL recent writers have described various conditions arising in cases of hydronephrosis, which may be classified under two principal groups of complications. First, distension of the kidney resulting from the progress of the accumulation of liquid in the cavity produces secondary lesions, which, little by little, involve the entire kidney, setting up an atrophic process and after a certain lapse of time complete atrophy of the organs ensues. In this case, when both renal glands are involved, the ultimate outcome is uremia with its usual fatal outcome.

Another end-result of hydronephrosis is as follows: After periods of toleration, varying from a few months to several years, according to whether the hydronephrosis is complete or intermittent, and also according to the degree of resistance of the other kidney, which, if it is healthy, may for a long time fulfill the functions of the diseased kidney, it will be observed that the sac which up to this time has caused no trouble farther than the inconvenience resulting from its size, becomes the seat of an acute infection, resulting in the patient's death in a few hours, with all the symptoms of a peritoneal inflammation of a serous type. An instance among many others is as follows: A patient was brought to the hospital with all the symptoms of an acute peritonitis. Laparotomy performed at once revealed a large suppurating hydronephrotic sac. After removal and drainage he recovered, this fortunate event being due to the immediate interference.

In other cases the fatal outcome, although not presenting the same alarming progress, occurs after a variable lapse of time.

Such are the complications described in cases of hydronephrosis, but what I desire to call attention to in the present paper is the possibility of the occurrence of an entirely different type of complication, arising during the evolution of this lesion. Leaving aside uremia and injection I wish to refer to hemorrhage occurring in cases of hydronephrosis and particularly from the viewpoint of diagnosis. As a matter of fact this is often impossible for the reason that the patient may sim-

ply have an abdominal tumor, or hematuria occurs with the tumor.

When an abdominal tumor is found, a series of questions arises. Is there a renal hemorrhage? Is this hemorrhage taking place in a distended renal pelvis? Or better still, by following the clinical stages, the question arises whether the tumor is a fluid renal tumor and whether or not the fluid contents are hematic? Replying to the first question, it may be said that it is not so easy as one might suppose *a priori* to make a diagnosis of a renal tumor and many have been the mistakes made. The seat of the tumor when on the right side under the liver may easily be diagnosticated as an hydatid cyst developing under the surface of the hepatic gland, all the more readily if, as occurred in one case, the area of percussion dullness of the tumor continues directly with that of the liver without any sonorous space between.

The presence of the tumor immediately behind the abdominal wall has a diagnosis of a cystic dilatation of the gall bladder. Then again, the diagnosis of hydronephrosis has not been made when dullness on percussion anteriorly over the tumor has been present, and at operation the true condition of affairs was discovered, the colon being pushed over to the internal border of the kidney. Consequently, the sonorous area over the renal tumor could not be elicited. Therefore, it seems to me that to make a diagnosis of renal tumor, one should take into consideration the shape, situation, the slight transverse mobility and lastly the presence of a pedicle.

As to ascertaining whether or not the contents are liquid, examination of the patient gives little information. In most cases of hydronephrosis with hemorrhage, the tumor was hard, resistant; fluctuation was wanting, and nevertheless, when incised a frankly hematic liquid escaped. However, in some cases a careful palpation distinctly revealed the sensation of fluid waves, in which case no doubt could be entertained as to the presence of a liquid in the renal tumor.

It now remains to determine if the liquid contents are hematic and here the examination of the urine and ureteral catheterization alone furnish us with the desired information. Examination of the urine is most useful when, as in the case to be related, there is pain and tumor, and the appearance of the hematuria causes cessation of the pain and a decrease in size of the tumor. This phenomenon is quite the same as in intermittent

hydronephrosis. But in two other cases that I am aware of, the sac did not empty itself and there was no intermittent hematuria coinciding with tumefaction and pain in the lumbar region, as in Fürbringer's case. The tumor alone was present; the urine, passed in normal amount, contained a trace of albumin but no blood corpuscles. Thus one can easily imagine that the possibility of suspecting the hematic nature of the fluid contents was out of the question.

In one case ureteral catheterization was attempted by Albarran, but was found impossible. This diagnostic means is valuable only in cases where the ureter is patent and when once the seat of the tumor and the nature of its contents have been recognized, one should consider the basic cause of the urohematonephrosis. Two conditions should be taken into consideration: (1) a simple or traumatic urohematonephrosis; (2) cancerous urohematonephrosis.

As of considerable interest, I will relate the following case of the latter condition: A physician, *act.* 49 years, of robust constitution, complained of frequent frontal headaches without vomiting. After various sojourns in the Colonies and in rather unhealthy cities, he returned to France. At this time he had no renal pain or urinary disturbance.

In July, one evening when retiring, he felt a slight pain starting from the right kidney and extending to the antero-superior iliac crest and from here going to the right testicle. A varicocele had been present on this side for several years. After a time the pain disappeared and he passed a good night. The next morning the patient did not notice anything abnormal; he felt well and had quite forgotten the pain of the previous night, when his wife noticed that his urine was quite dark. Examination showed that this urine contained albumin.

A strict milk diet was then carried out, but the patient remarked that his strength was very markedly diminishing; he likewise noticed a notable loss of weight. In the following January, he complained of pain as in the previous July, but this time it was more intense. It occupied the right lumbar region and extended to the testicle. The pain was so severe that the patient took a subcutaneous injection of morphine and fell asleep for about an hour, when he suddenly awoke with a start and fell back unconscious. After a few minutes he regained his senses and immediately felt a great desire to urinate. The urine was very dark and at the same time the patient felt a large, soft

mass pass the urethra and fall into the pot. A period of prostration followed the passing of the urine.

But at the time that this paroxysm took place, the patient had distinctly a large tumefaction in the right flank. The skin over it was hot and tender to pressure.

Still suffering and unable to work, the patient came under observation. By rest the pain abated somewhat and strength returned, but the urine still contained albumin to the amount of 2 grams per liter. The total twenty-four-hour amount varied from 1500 to 1800 c.c., color normal, reaction acid, specific gravity 1020, not a trace of sugar. As to the urea and uric acid, they were in normal quantity.

However, soon after this, after a railroad journey, the patient again passed dark urine on getting up, and a large blood clot was seen at the bottom of the pot. After this, the hematuria ceased, but the tumor continued to increase in size, so that in May the patient decided to be operated on.

On examination, a large tumor in the right lumbar region could be detected. Palpation revealed the contours of the mass whose surface seemed smooth. No distinct fluctuation could be made out. Palpation gave rise to no pain, but rather to a general lameness of the region occupied by the tumor.

Upon incising the sac a very large quantity of black urohemetic fluid, containing clots, escaped. When the pocket was emptied a granular mass could be seen bleeding into the interior of the sac, and which, in the beginning of the process, must have produced a stasis of aseptic urine. Later on the retention of urine became complicated by secondary hemorrhage, which in turn gave rise to the development of the urohemetic sac. In this case, one was evidently dealing with a growth which had obstructed the ureter completely and the operative outcome proved this. Drainage of the sac continued to give rise to liquid for some time and a few months after the operation the patient died with all the ordinary phenomena of malignant cachexia.

Thus one sees how often the diagnosis is difficult, not to say impossible, because if often the existence of a renal tumor cannot be doubted, usually only a presumption as to the nature of the liquid contents can be had, and if this liquid is hematic, the cause of the hematuria is difficult to surmise.

However, the fact that for a number of years, even without any urinary disturbance, there has been an increase in size in one lumbar region accompanied by the presence of a rounded

mass, more or less hard to the touch; the slow and progressive evolution of the disease which may remain unnoticed and only become manifest after a trauma; and lastly the trauma itself; all plead in favor of a hydronephrosis complicated by a collection of blood in the sac.

But if instead of this symptomatology, the patient being a subject well along in years, complaining of pain extending from the loin to the testicle with loss of flesh and earthy pallor of the skin; if also by palpation a more or less resistant, rounded abdominal tumor is found, slightly mobile transverse, a malignant growth of the hilum of the kidney should be thought of, which by its presence obstructs the ureteral lumen. And if in this case after incision of the sac an hematic liquid escapes, it is more than likely that there has been a hemorrhage from the uroplasm into the cavity of an hydronephrosis. An examination of the fluid will give important information because microscopically epithelial cells will be seen, which will remove all doubt as to the true nature of the process. For that matter, when the tumor can be inspected and digitally examined and is situated in the neighborhood of the hilum and is found to be irregular in surface and pliable, no hesitation as to its malignant nature is permissible.

There are two processes which may lead the surgeon astray in his diagnosis, to which I wish briefly to refer, namely, hemoglobinuria and retroperitoneal sanguineous cysts. As to hemoglobinuria, the presence of a renal tumor and especially the microscopic examination of the hematic liquid will remove any doubt, for the presence of any blood corpuscles, no matter in what condition of preservation, indicates renal hemorrhage.

As to serosanguineous cysts, an attentive examination is essential and even direct exploration may be necessary to decide the question. Although these cysts have an extrarenous origin, they may take on such development that they might be mistaken for the renal gland. If they should open into the ureter and empty themselves into the bladder one can readily imagine how easily an erroneous diagnosis could be made.

The prognosis of hemorrhage occurring in an hydronephrosis is serious. If free it may give rise to all the symptoms of internal bleeding, such as syncope, etc. It may be so severe that a fatal outcome ensues.

From the hemorrhage the tumor increases in size and makes itself evident, possibly for the first time, and soon phenomena

of compression appear, either in the pulmonary apparatus or in the abdomen itself. The sac may acquire such size as to prevent the patient from getting about. Then, too, there is always the possibility of future infection, so that all these conditions darken the prognosis and indicate a rapid surgical interference.

To conclude, it may be said that besides the already known complications of hydronephrosis there exists another, namely, hemorrhage occurring into the sac. This complication is not common and usually is the result of a trauma, a fact which does not exclude the occurrence of a urohematonephrosis of a malignant source. The symptomatology is not clear, and other than those instances where a renal tumor decreases in volume after hematuria has taken place, it is hardly possible to recognize the nature of the contents. The diagnosis is difficult and often is only made when the sac is incised, while the prognosis is serious and demands immediate operation, which should be nephrectomy where the functional condition of the fellow kidney is known.

NEOPLASMS OF THE RENAL PELVIS AND URETER, WITH THE REPORT OF A CASE

By CHARLES GREENE CUMSTON, M.D., Boston, Mass.

NEOPLASMS of the renal pelvis and ureter are not common, but it should be pointed out that these growths are often overlooked and since their characteristics and evolution closely resemble other uroses, their diagnosis is often not correctly made. Excepting mesodermic malignant growths which form the exception in statistics of these tumors and are above all met with in children, these neoplasms occur in adults from thirty to fifty years of age and with equal frequency in both sexes.

Growths limited to the renal pelvis have been quite frequently recorded, but few ureteral neoplasms have been reported, so that Richter in his recent paper (*Zeits. für Urologie*, May, 1909) only collected ten instances. The most common neoplasms are those which, at the time of their evolution, involve one or the other of these two organs.

It would appear that in nearly all the cases the growth is secondary to some preëxisting pathologic condition, such as renal calculi or pyelitic or ureteral neoformations. The chronic irritation to which these give rise is the primary causal factor of the neoplasm.

Growths of the renal pelvis and ureter coexist so frequently that they can hardly be studied separately. From the viewpoint of origin they belong to two distinct classes, the one being epithelial in origin, the others mesodermic.

Epithelial neoplasms have many very considerable differences among themselves as far as their structure, malignancy and tendency to metastases are concerned. Three types of epithelial growths are to be considered, the first of which is papilloma, the most common of the three. Their location varies, but, generally speaking, they spring from the renal pelvis and from here involve other structures. Papillomata vary in size, sometimes being very minute in the form of small villous growths, which, when placed in water, are seen as pedunculated arborescences. At other times the growth is composed of large, soft, villous masses. Their growths are red or grayish in color, bleed easily and are very friable. Extension rarely takes place by way of the lymphatics, and it is very rare to find enlarged lymphnodes when doing a nephrectomy for these growths.

In point of fact the extension appears to take place in a

special way which I would like to consider in some detail. One sees secondary neoplastic islands either in the renal parenchyma or on the upper or lower portion of the ureter which are completely separated from the neoplasm giving use to them. It is pretty clearly demonstrated that extension takes place by distant grafts; the papillomatous buds carried away by the urine become fixed at those points where the flow is hindered, that is to say at the three normal points of narrowing of the ureter, particularly at the upper and lower ones, because the secondary growths are more prone to occur here. I am aware that Ribbert and others are opposed to this view, but it certainly appears very plausible.

Microscopically, papillomata are made up of a ramified connective tissue framework, over which is stretched the mucosa of the renal pelvis. The epithelium is thickened at certain areas, to such an extent that it may give rise to adenopapillomata. In other instances it desquamates. The framework contains very delicate vessels, thus explaining the frequent severity of the hematuria.

The second class comprises the papillary epitheliomata. In only about fifty per cent. of the cases is the renal pelvis the initial seat of this type of tumor, which is much less common than papillomata. Microscopically, the structure varies. Sometimes it resembles papilloma, at others the neoplasm looks very different and it is only by microscopic examination that the villousities can be made out. Histologically, there are differences. Sometimes it is a papilloma with areas of epithelial infiltration, at others it is an epitheliomatous growth composed of cylindric cells.

The manner of extension differs essentially from that of papillomata, taking place more frequently by the lymphatics than by graft, so that one often sees epitheliomatous involvement of the lymphnodes and viscera. Nevertheless, extension by graft does sometimes occur. It is quite conclusively proven that papillomata undergo epitheliomatous transformation, this being practically always the case of vesical papillomata.

The third class, which is rare, is epithelioma, met with in the form of nodular growths infiltrating the walls of the renal pelvis and ureter. Extension by graft does not occur but being essentially malignant they give rise to metastases in distant organs.

Microscopically, they are sometimes alveolar carcinomata, at others columnar, rarely pavement cell epitheliomata.

The kidney in some cases is reduced to a sclerous shell; some-

times it may be the seat of an island of secondary neoplastic deposit, but nearly always it is distended and on section it is found to contain hematic or purulent fluid. The bladder may give evidences of inflammation, and in cases of papillomata particularly, it can become the seat of a graft, in which case this takes place at the ureteral meatus. It is generally pedunculated and protrudes into the bladder. In cases of epithelioma, metastases occur in the liver, lungs or opposite kidney.

The mesodermic neoplasms are far less common than the preceding types, and are almost exclusively encountered in childhood. They sometimes undergo their evolution within the cavity of the renal pelvis, in which case they cause renal retention. At others they evolve outside and then may give rise to compression. Histologically, they are rhabdomyosarcomata, sometimes round on spindle cell sarcoma. Being very malignant they give rise to distant metastases, representing the type of the primary neoplasia.

Pyelitic or uteral neoplasms present great differences as to the predominance or absence of various symptoms, according to their anatomical evolution, but certain great general characters that they present allow an analytical description of their symptomatology. Pain is sometimes the first symptom, having the character of nephretic colic, while in some a simple sensation of weight in the renal region is complained of. Then again, pain may be absent throughout the entire evolution of the process.

When a tumor is present, it is rarely formed by the growth *per se*, excepting in cases of mesodermic neoplasm. When it can be detected by palpation the mass is the kidney in a state of retention and is in reality a secondary uronephrosis or hematonephrosis. The renal tumefaction may be absent in the beginning or even during the entire evolution of the lesion, because it is easily understood how a small growth in the renal pelvis would in no way interfere with the flow of urine, while if it is growing outside it would naturally not give rise to renal retention.

When a tumor can be felt, its principal character, which may be said to be pathognomonic, is its intermittency. One day it will be present, the next absent, because it has emptied itself. When dealing with an intermittent hematonephrosis one should at once suspect a tumor of the renal pelvis or ureter, and a knowledge of this symptom is of utmost importance, for not only is quite special to these lesions but it may be the only symptom present for some time.

In absence of any other disorder, hematuria may alone be the only symptom. It may sometimes be wanting, but rarely so, while in some cases it is so severe as to endanger the patient's life.

The urine is periodically bloody and one should search for bits of tissue held in suspension by centrifugation. Not infrequently, especially in papillomata, one finds débris of the growth, the microscopic examination of which will materially help the diagnosis.

By cystoscopy and ureteral catheterization important conclusions may be reached. When the growth is a papilloma occasionally little villous growths may be seen projecting into the bladder from the ureteral meatus.

Compression of the abdominal viscera from these growths is most infrequent and the mesodermic neoplasms only may occasionally cause intestinal obstruction or venous compression.

As has been pointed out, the extrapelvic type of neoplasm is rare. They do not possess the characters of renal tumors with hematuria, etc. They are in reality growths having a strictly intraabdominal development. Their progress is rapid and kills the patient within six months to a year. The intrapelvic renal growths either give rise to pain, renal tumor or hematuria. The evolution of a papilloma before it has undergone malignant transformation is slow and the general health remains good, but when malignancy develops the fatal outcome may be soon looked for.

The diagnosis of these lesions is a delicate matter, this being rendered still more so from the necessity of ascertaining the nature of the growth, the condition of the involved kidney and that of its fellow, the spread of the neoplasm by continuity or generalization. Is there a tumor of the renal pelvis or ureter? This question is difficult to answer, especially if one or more of the principal symptoms are wanting. Sometimes one may suspect a renal calculus, but the continuation of the hematuria when the patient is kept quiet, the absence of pus and the negative result of the X-ray allows one to eliminate this diagnosis. The question is more difficult if calculi are present along with the growth, a condition of affairs that has been met with.

Renal tuberculosis is less liable to cause a mistake, given the absence of pyuria in the majority of cases of neoplasm, the negative results of animal inoculation, etc.

On the other hand renal tumors may easily give rise to mistakes. In this case the clinical picture is often like that of renal pelvic growths with hematuria, renal tumefaction and lumbar pain, but under these circumstances the renal tumor is constant and the general health is soon altered. Hematuria without retention will lead one to suspect that the growth is seated in the upper portion of the renal pelvis or calices, while large hematuria probably indicates that the neoplasm is in the ureter or in the renal pelvis close to the ureteral orifice. Ureteral catheterization is indicated to ascertain the functional condition of the opposite kidney and will also demonstrate the presence of grafts in the ureter if they exist.

Case. Mr. A. J. at 34 years, consulted the writer on June 10, 1912, for blood in his urine. About six months previously, and without any cause he was seized in the middle of the forenoon with an imperative desire to micturate. To his surprise he found that he voided pure blood. After this the urine became less bloody and after a few days was quite clear again. About six weeks later the same phenomenon occurred, the urine clearing up in a few days. There was no pain at any time but finally the hematuria became continuous, the urine being always tinted with blood.

The patient's general condition was fairly good and other than some anemia (hemoglobine 67 per cent.) he looked well. Heart and lungs normal.

By palpation the lower pole of the right kidney could be readily made out; the left kidney could not be felt. After this examination the patient voided considerable blood and some clots. By cystoscope blood was seen coming from the right ureter, ureteral orifices normal, likewise the bladder. Left urine normal; right urine contained much blood and only a trace of urea. X-ray negative. A diagnosis of renal neoplasm was made and operation advised.

On June 16, 1912, the right kidney was exposed by the oblique lumbar incision, extending from the twelfth rib to antero-superior iliac crest. The perirenal fat was gone through and the enlarged kidney isolated without trouble. The organ presented at its lower pole considerable enlargement and the kidney was then split open so as to explore the pelvis and ascertain the nature of the enlargement. The pelvis was somewhat distended by a papillomatous growth which to a certain extent occluded the

ureteral orifice. During manipulation there was pretty free hemorrhage from the neoplasm. The renal enlargement proved to be a retention cyst occupying about two-thirds of the organ. Nephrectomy was easily done. Drainage of the renal space. Patient returned to bed in good condition. Recovery uneventful. Microscopically the neoplasm proved to be a papilloma, but in none of the sections could any trace of malignant transformation be detected. Three months after the operation the patient was in excellent health.

The treatment is exclusively surgical. Partial resection of the renal pelvis, combined or not with partial resection of the kidney, is to be condemned as unsurgical and nephrectomy, with or without ureterectomy, partial or total according to the indications, is the only rational procedure. The only contraindication is, of course, a poor functional showing of the opposite renal gland.

871 BEACON STREET.

A REPORT OF DOUBLE CONGENITAL STRICTURE OF THE LEFT URETER WITH A MOVABLE CALCULUS BETWEEN THE POINTS OF CONSTRICTION

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THE following case is of interest not so much because of the multiple congenital strictures of the ureter, but more particularly because of the development of a calculus, which was freely movable in the widely dilated portion of the ureter, between the points of constriction.

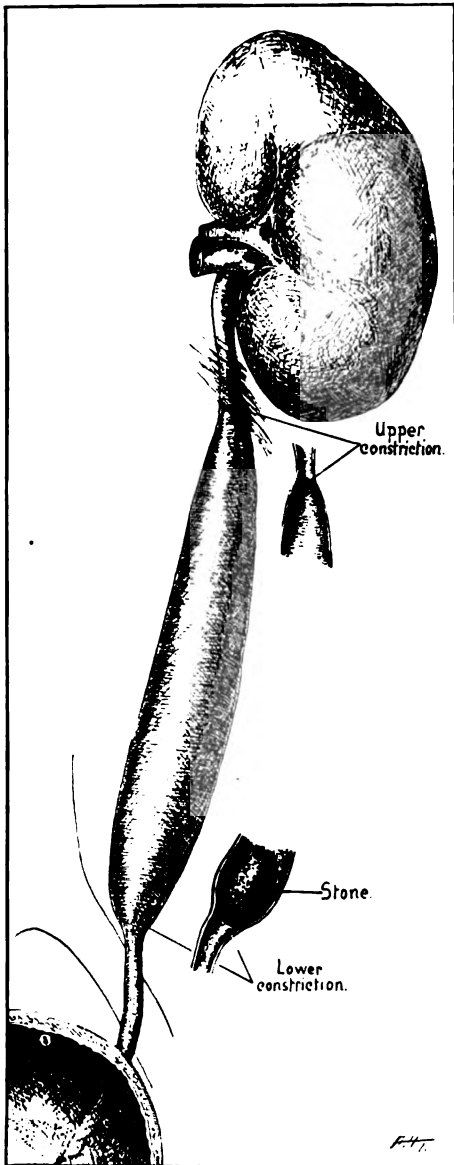
An American, laborer, aged 18 years, was admitted to the hospital in May, 1911. Family history was negative. He gave a past history of general good health, except for the present trouble. Denied lues. Had urethritis two years before and a second attack two months before entering hospital.

The patient had been having attacks of pain in the left side about once a month ever since he could remember and his mother stated ever since he was an infant. These attacks were associated with pain running into scrotum and penis, duration varying from a few minutes to several hours. Last attack, two weeks previous, came on suddenly while at work, lasted for twelve hours, was very severe and accompanied by chills and elevation of temperature. The urine had contained blood for the past three or four years, which would appear at times without any pain. Has had no blood for the last 10 months.

Physical examination showed a normal, well developed young man. Rectal examination showed the prostate small, smooth and not tender. Seminal vesicles not palpable. Slight fullness just above prostate in region of bladder. No tenderness along course of left ureter. Kidney not palpable. Urine contained a few leucocytes and some red cells.

An X-ray picture showed a shadow in the lower portion of the left ureter, about the size and shape of an almond, as shown by cut.

Operation: With the patient in a moderate Trendelenburg position the usual oblique incision for extraperitoneal exposure of the lower end of the ureter was made. The ureter was exposed and palpated but no stone detected. Further exposure



revealed a widely dilated ureter which was opened and a considerable amount of fluid escaped at the time; a probe was inserted down towards the bladder, but no stone could be felt. The probe was then passed towards the kidneys but no stone discovered. The opening in the ureter was enlarged for the insertion of the index finger, which could easily be done, as the ureter was about the size of a human small intestine. A short distance below the opening I could detect a constriction in the ureter, which seemed quite narrow and through which I passed a small steel probe into the bladder. Thinking that perhaps the stone might have been forced through into the bladder, the latter was opened but no stone found. I felt sure it could not have passed through the urethra without the patient's knowledge, because of his urethritis, and besides the X-ray picture demonstrated a rather large stone. After closing the bladder it was decided to try another X-ray picture.

The anesthetic was changed from nitrous oxid to ether and the patient sent to the X-ray Laboratory. The first picture

of the lower ureter, where the shadow was seen before, was negative. A second picture of the upper ureter and kidney showed the stone in the upper part of the ureter. The patient was returned to the operating room and placed in a nearly upright position, hoping the stone would drop down to the lower end of

the ureter, but it could not be reached. A third incision was made in the lumbar region and the pelvis of the kidney exposed. The stone was not in the renal pelvis, but could be detected at a point just below a narrowing and strictural portion of the ureter. From this point the stone could be pushed downward and was finally removed at the first incision. The ureter was closed with 00 chromic catgut. The patient made a good recovery without any return of his attacks of pain.

The change of position at time of operation, together with fluid in the ureter, allowed the stone to move up out of the first field of operation, but after the ureter had collapsed it was held in place and could not again be moved by simply changing the position as was tried when he returned to the operating-room from the X-ray Laboratory.

1021 PROSPECT AVE.

SEXUAL IMPOTENCY IN THE MALE *

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CHAPTER VI—ALTERATIONS OF THE EJACULATORY FUNCTION

WE assume besides the erection center a second center regulating the male sexual functions, namely, the ejaculation center. In contrast to erection, which is a purely vasomotor phenomenon, ejaculation consists in a series of motor acts, which we must divide into two groups. The first includes the movements of the vasa deferentia, the seminal vesicles, and the prostate, which produce the pouring out of the semen into the urethra; the second group consists in the contraction of the striated muscles, which surround the bulbous part of the urethra. The effect of their clonic contractions is the rhythmical ejaculation of the seminal fluid from the end of the urethra.

The centers for these motor functions are separated. While the existence of a spinal center for the seminal ejaculation is surely established, the center for the outpouring of the secretions of the sexual glands into the posterior urethra lies in the sympathetic ganglia of the pelvic floor. (E. Müller.) The results of animal experiments and clinical experience in spinal diseases furnish proof of the existence of these separate centers. Patients, in whom the lowest part of the spinal cord has been destroyed by a pathologic process, trauma, can indeed have ejaculations, but the semen is not thrown out, but is emptied drop by drop without any propulsive force.

And animals, in whom the lowest part of the spinal cord, the sacral and lumbar, have been extirpated, have erections and also ejaculations; yet it is always observed in such animals that the semen drips out of the urethra slowly. (Müller's experiments.)

Further the similarity of the voluptuous feeling, which

* Continued from December issue. The entire treatise, edited with notes by Dr. William J. Robinson, will appear in THE AMERICAN JOURNAL OF UROLOGY during 1913.

comes at the moment of the emptying of the semen into the posterior urethra, to other sensations coming from the sympathetic system (such as the tickling sensation, nausea), is an indication that the center for this act lies in the sympathetic system.

Important points of departure for the pathogenetic significance of the disorders of ejaculation result from this separation of the two functions, of which the act of ejaculation is composed.

Equally important for the sexual functions are the relations of the two reflex centers for ejaculation and erection, to each other and to the cerebral center, lying in the cerebral cortex.

In normal coitus ejaculation is produced by the summation of tactile stimuli on the erected penis, specifically by the stimuli of friction in the vagina. The ejaculation center is thus capable of excitation from the periphery just like the erection center. But stimuli can also reach the ejaculatory center from the cerebrum, which result in automatic discharge of the ejaculatory reflex, namely, pollutions, and in the waking state erotic ideas or perceptions of sufficient intensity and duration. The length of interval between the beginning of erection and the completion of ejaculation is different in different individuals and also varies in the same man, depending upon various circumstances. The excitability of the ejaculatory center is determined by the state of fullness of the seminal vesicles, the intensity of the sexual excitement, and also by the amount of sensible friction in the vagina. Inhibitions from the cerebrum also take place for the ejaculatory center; for one is able voluntarily to postpone the ejaculation, and it can be quite suppressed by anxiety, by fear, and by being surprised during cohabitation.

Abnormally easy ejaculation may result from the absence of cerebral inhibitions.

From the above considerations we obtain the following classification of the derangements of the ejaculatory faculty:

Lack of ejaculation—psychic aspermatism (see this chapter).

Lack of inhibition of the ejaculatory center—precipitate ejaculation.

Increased inhibition of the ejaculatory center—retarded ejaculation.

Increased excitation of the ejaculatory center—ejaculatio præcox.

CHAPTER VII—EJACULATIO PRÆCOX

Precipitate ejaculation, occurring before the introduction of the penis or immediately after it, is observed in two different forms, which are probably also of different pathogenesis. The first form is that produced by increased stimulation of the ejaculatory center, while the second is due to the abnormal irritability of that center. The latter form is also described by the authors as "impotence from irritable weakness," "nervous irritative impotence." (Casper.)

Ejaculatio præcox produced by abnormally strong stimulation of the ejaculation center is distinguished from the second form, resulting from irritable weakness, by the fact that the former occurs in entirely healthy men without any sign of neurasthenia or of abnormal excitability of the sexual centers, while the latter is to be considered as a local sign of sexual neurasthenia. As regards symptoms there is also this difference between these two categories that the effect of the two kinds of ejaculation is quite different. The precipitate seminal emission from irritable weakness is characterized by the lack or slight development of voluptuous feelings and of the satisfaction resulting thereafter. The first-mentioned form of ejaculatio præcox on the contrary happens with lively voluptuous sensations and abundant satisfaction, as in normal coitus.

We think accordingly that we are justified in keeping these two main forms of premature seminal emission clinically strictly apart; moreover in prognosis and therapy the individual cases behave quite differently. We cannot, however, conceal the fact, that in any individual case it may be extremely difficult to decide to which type of impotence it should be assigned, since numerous slightly different cases show the transition from the one form to the other [as a rule, however, there is not the slightest difficulty in differentiating the two types. The history alone as given by the patients is often sufficient for the diagnosis.—W. J. R.].

I. EJACULATIO PRÆCOX FROM PSYCHIC INFLUENCES.

Even quite healthy men, whose sexual life from the beginning was subject to no injurious influences, such as masturbation or sexual excesses, can under some circumstances suffer from precipitate ejaculations. After sexual abstinence of long duration and with greatly excited sexual desire the stimuli proceeding from the cerebrum to the spinal reflex centers for erection and ejaculation can be so greatly increased, that the stimulus-threshold for the ejaculatory center is passed earlier than normal, and the cerebral inhibitions to ejaculation are more easily overcome, whereby the automatic course of ejaculation starts sooner, indeed before the introduction of the penis into the vagina or shortly after on the first friction of the glans.

But the erection is always complete in these cases, only the impulse for coitus is immoderately strong. The orgasm accompanying the ejaculation is entirely normal as well as the voluptuous feeling of satisfaction after coitus.

We know plenty of cases, in which this form of precipitate seminal emission occurs as a regular thing, when the patients have intercourse the first time with a new acquaintance. In the second sexual congress the erection, ejaculation, and orgasm are all normal. [Many men perform the act perfectly with their wives, but are practically impotent on account of precipitate ejaculation with any strange woman.—W. J. R.]

The prognosis of such cases, in which there is not the least sign of a general neurasthenia or of weakness of the sexual reflex centers, is wholly favorable. It suffices usually to instruct the patient to diminish the sexual impulse somewhat before the intended coitus by a large dose of bromides. The stimuli, which then reach the ejaculatory center, are thereby so much weakened that they pass the stimulus-threshold for the emission of semen at the normal time.

II. EJACULATIO PRÆCOX FROM IRRITABLE WEAKNESS.

The symptom-complex of this form of impotence presents quite a different picture when there is a primary hyperexcitability of the ejaculatory center. One can usually prove with-

out difficulty a condition of general nervous exhaustion. The signs of sexual neurasthenia, concerning which we will report fully in another place, the characteristic habit, the nervous, local and general phenomena are never absent.

The libido is completely preserved, may indeed be much increased, and erection occurs, but in many cases it is extremely deficient, and at the very moment when the patient intends to introduce the penis, an ejaculation occurs, which far from giving pleasurable feelings or leaving a sensation of satisfaction, is accompanied by all sorts of somatic and psychic feelings of revulsion. The patients may suffer at the moment of remission violent burning pains in the urethra, discomfort in the whole body, and pains radiating from the prostate to the entire back and the extremities. Instead of the feeling of satisfaction come extreme exhaustion, marked flaccidity and psychic depression with self-reproaches, etc. The oftener the fiasco occurs, the unhappier and more depressed the patient becomes, and the more his confidence disappears in his virility and the curability of his impotence.

And if the condition is neglected, the genital functions become steadily worse. Erection becomes more and more deficient, and in severe cases the patients tell us that on intended coitus the penis actually *shrinks* and the ejaculation takes place more and more precipitately, until finally seminal emission occurs on trivial contact with women without any erection whatever.

In the further course of the affection these precipitate ejaculations occur, with the abnormally easily reacting center, also from erotic fantasies, from lascivious reading, from sensual visual perceptions without the least erection. It is indeed a question, whether we should not rather classify the last mentioned final results of impotence from irritable weakness as cases of "atonic pollution in the waking state" and "psychic masturbation." The irritations of the genital reflex centers, aggravated anew by every unsuccessful attempt at coitus, aggravate the general neurasthenia, so that the chain of symptoms: general neurasthenia—hyperexcitability of the genital reflex centers—impotence from irritable weakness seems complete.

The abnormal irritability of the ejaculatory center, which we have seen is associated usually with a premature state of exhaustion of the erectile center, has various causes.

The extremely numerous traumata, which continually affect the genital centers as a result of precocious masturbation, dissolute habits, abortive excitement, and interrupted coitus must chiefly be held responsible for a permanent irritation. The effect of the permanent irritation of the sexual sphere is at first an increased libido, with which the erectile faculty can often not keep pace. In all the above-mentioned excesses the psychic inhibitions, which serve to regulate the reflex centers, are at first voluntarily set aside, for the masturbator desires quick ejaculation; in interrupted coitus and ungratified excitation the inhibitory processes are willfully misused; and in this way, namely through the disappearance of cerebral inhibitions, a condition of abnormal excitability of the ejaculatory center results, which in turn produces impotence from irritable weakness.

To this is added a permanent peripheral stimulation of the reflex centers COMING FROM THE SENSORY NERVE-ENDINGS OF THE PROSTATIC URETHRA.

Peyer called attention to the congestive inflammatory conditions in this extremely sensitive region of the mucous membrane, which result from repeated sexual abuse. Masturbators and also not rarely those indulging in coitus interruptus and ungratified excitements suffer, owing to the defective depletion of the sexual organs after the substitute for the sexual act, a permanent hyperemia of the prostate and the mucosa of the posterior urethra, which can exert a permanent centripetal irritation upon the genital reflex centers. The endoscopic examination in these cases usually shows besides an abnormal hyperesthesia of the posterior urethra a loosening and swelling of its mucous membrane, colliculitis seminalis. Moreover the examination of the urine shows the signs of chronic posterior urethritis, and the patients complain not only of impotence but also of trouble in passing urine (dysuria, polyuria, sphincter-spasm).

Chronic inflammatory hyperemia of the urethra thus irritates the reflex centers permanently, makes them abnormally

irritable, and also becomes the cause of unpleasant accompanying symptoms of impotence. The often extremely painful neuralgic attacks at the moment of ejaculation are to be regarded as local and remote effects of the irritation of the prostatic urethra (urethral pain, prostatic pain, etc.)

III. RETARDED EJACULATION.

This gives our patients ground for complaint when it requires very tiring efforts during coitus in order to obtain an ejaculation, or when the latter occurs at a very exceptionally. (Psychic aspermatism.)

Ejaculatio retardata owes its origin to diminished excitability of the center or to increased inhibition of this reflex act.

The delayed seminal emission may be within physiologic limits, when in certain cases in otherwise quite healthy men the libido and the impetus to coitus are not very strong, or when the tactile sensations in the vagina are not intense enough to stimulate the ejaculatory center. That can also occur in organic diseases of the spinal cord as well as in alterations of the copulatory organs. Disorders of sensibility in the skin of the penis resulting from tabes can produce retarded ejaculation from the diminished conveyance of stimuli. We have mentioned in another place two cases of tabes with anesthesia of the glans penis, in which coitus was long drawn out as a result of the delayed ejaculation.

Certain forms of sexual abuse can also lead to protracted ejaculation.

Especially in coitus interruptus, where the seminal emission is often voluntarily postponed, when the man attempts a regular cohabitation, he may have to wait immoderately long for the ejaculation. Especial cerebral inhibitions must first apparently be overcome by longer friction and the resulting stimulation of the ejaculatory center before the emission follows.

Abnormally difficult ejaculation resulting from increased inhibitions of the reflex act is further observed as one of the

symptoms of senile impotence, also in diabetes and in chronic morphinism (see Krafft-Ebing.)

The highest degree of retarded ejaculation, is found in cases of PSYCHIC ASTHENIA in which the coitus movements are continued to exhaustion, often for over an hour, without an ejaculation; only a pollution occurring in the same night discharges the ejaculation reflex.

In delayed ejaculation we can also naturally distinguish just as in early impotence, two symptomatologically different groups of cases.

The first group includes cases of delayed seminal emission in otherwise quite healthy men, in whom only in a certain case the ejaculatory reflex is delayed, but the orgasm and feelings of satisfaction are present unchanged. The cerebral inhibitions to ejaculation are so increased by external influences (in many cases the physical qualities of the female partner) that it needs mechanical stimuli of longer duration to cause the ejaculatory reflex discharge. In the second group belong the cases of sexual neurasthenia, commonly due to definite forms of sexual abuse, in which insensitiveness of the center of increased inhibition of the reflex cause the retarded ejaculation.

Strong feelings of disinclination, abnormal lassitude and general relaxation often ensue in these cases after ejaculation. In these cases a much longer period of rest is required before the patient can have an erection for another intercourse.

(To be continued.)

DEPARTMENT OF SEXOLOGY

SOME OBSERVATIONS ON THE PSYCHOLOGY OF SEXUAL INVERSION IN WOMEN *

By DOUGLAS C. McMurtrie.

CASES of abnormal sexual development are liable to come under the observation of the psychologist as frequently if not more frequently than under the notice of the physician. That this is true is due to the fact that very few such cases are ever brought to the physician in a professional capacity. The subjects tend to conceal the facts of their condition, and are inclined to work out their own salvation. Only when their course conflicts violently with the interests of the community is the medical man called upon to diagnose and prescribe.

The great majority of the sexually abnormal live their lives without ever coming in contact with the medical profession, at least in so far as their physical characteristics are concerned.

There are many criteria, however, upon which may be based judgments by those who are interested in the subject of sexual development. Sometimes this interest is taken by the physician as in the case of Albert Moll, and sometimes by the psychologist as in the instance of Havelock Ellis. There are many elements of sexuality where the fields of the two coincide and where the interest, in some of the characteristics at least, is thoroughly mutual.

It should be borne in mind that the most valuable information regarding the subject in hand will be derived from a knowledge of the cases met with more frequently in common experience than from the extreme instances of morbid pathology.

Perhaps one of the least known phases of sexual abnormality is that of homosexuality in women. There have been many studies of inversion, but practically all devote but little attention to female manifestations. Albert Moll, in his "*Konträre Sexualempfindung*," relates but thirteen cases, and von Krafft-Ebing, in his "*Psychopathia Sexualis*," gives the matter scant attention. Havelock Ellis, in his "*Studies in the Psychology of Sex*," reviews the subject with considerable thoroughness, but cites but four original cases, though these are given at considerable length.

One reason for the lack of data on the subject is undoubtedly the difficulty of recognizing sexual inversion in women, due to

* Cinc. Lancet Clinic.

the customs of the day which permit and even call for caresses and outward demonstrations between members of the female sex. In addition women are very generally ignorant of the details of sexual character and, not recognizing themselves the character of their tendencies, there would be greater difficulty for others to secure definite information.

The existence in certain instances of the attraction of woman for woman has long been recognized and referred to rather fully in literature, though the accurate statistics have probably not always been understood. The prototype of the woman invert has usually been regarded as Sappho, the Greek poetess of Lesbos, and from the name of her home city homosexual affection between females has taken the appellation of Lesbian love. From this time onward there have been a considerable number of well-known women to whom have been attributed homosexual characteristics. It is worthy of note that the first instance of sexual inversion to be scientifically recorded concerned a young woman who had masculine tendencies, was attracted by those of the same sex, and was indifferent to the attention of men. This was by Westphal in the *Archiv. für Psychiatrie*, 1870. Before this time inversion had always been considered a function of imbecility, idiocy, or criminality, and Westphal was the first to point out that the abnormality was congenital rather than acquired through vice or degeneracy.

With this brief introduction it may be well to pass to the description of some cases which have come under my immediate notice. My original intention has been to record instances of homosexuality in women, but I have encountered several unusual instances where the attraction has been not only for others of the same sex but also for inverted men. These cases, and especially Case 1, seem to justify more thoroughly than anything else the use of the term "sexual inversion." It is true inversion indeed, when from a psychosexual standpoint the woman can assume the masculine attitude while the man assumes the feminine.

As the characteristics of the men concerned are of immediate interest to the subject, I have included short records regarding them as Cases II, III, and IX. It will also be seen that several of the female histories bear relations one to another. This I consider valuable as too often the clinician of sexual cases has at hand data regarding one party only, and must thus lose much of value in regard to mutual relationship.

CASE I. B., twenty-two years old, a prostitute of three years standing. Heredity on the maternal side was healthy, the father had been extremely dissipated and probably tended toward degeneracy. B. had always tended to be wild and at the age of nineteen ran away from home, going to the city, and soon after entered a house of prostitution of the higher grade. From her earliest years she had had little attraction for men, but this became crystallized in more definite form as her sexual experience broadened in the heterosexual relations in pursuit of her calling. She took, however, no pleasure in normal coitus but used, however, in a purely artificial way, all the devices of seduction. When first observed B. was in the constant company of two men, themselves pronounced inverts. Her homosexual tendencies were not at the time known, but were suspected from her obvious attraction to these men — men who themselves only cared for those of their own sex and who were repulsive to most women. When confronted with a statement of this suspicion B. confessed to being an invert, but was fearful lest this might be made known to the mistress of the house of prostitution. This fact if known, she stated, would decrease her value to the house. At this time she made known the preliminary circumstances already related. The situation was a very unusual one, *i.e.*, attraction between inverts of opposite sexes, but it is one which does not conflict with the theory of inversion. B. played the masculine, while the feminine part was taken by the males referred to. The attendant circumstances are worthy of note as indicating a complete reversal of normal practice. The two males were chorus men in a musical show. She would call for them after the theater and take them to quarters which she had available. In addition she paid all incidental expense, such as for drinks and cigarettes. In every way the relationship was active on her part rather than on the part of her consorts. I cannot regard B. as in any way a psychosexual hermaphrodite. Though she was involved from time to time in heterosexual connections, these were for business reasons only and were to her in no sense a voluntary sexual function. As it may be of interest in this connection I will describe the two inverts with whom she was involved. For purposes of description we may designate them as C. and E.

CASE II. C., male, twenty-six years old. Came of a good family, with no hereditary taint so far as could be ascertained. Their standing in the community, which was a city of medium

size, was of the best. Upon reaching the age of twenty his homosexual tendencies became so imperative that he indulged them freely, having the means to offer financial inducements where necessary. His practices with some younger men becoming known, however, he was forced to leave his home city and come to a larger one, being completely cut off and ostracized by his family who refused to have anything further to do with him. He had an extremely high soprano voice and readily drifted onto the stage in musical comedy. His voice made him desirable for the chorus and the situation was otherwise agreeable. The morals of the company were lax at best, and as most of the members were familiar with one or more types of sexual aberration, he was not regarded with quite the same stigma as in other circles. He had relations from time to time, though hardly promiscuous, with various masculine men, but had had several *liaisons* with inverted women, with whom of course he never practiced normal coitus.

C. had comparatively high intellectual attainments, evidencing a good education. He was very busy in arraigning society for its attitude toward those of his type, and was prepared to ethically justify his characteristics and practices. C. had almost every feminine trait in coquetry and carriage. His waist was small, his figure slight, his growth of beard practically nil, and his genital organs stunted. C. was generally known by the name of Rose.

CASE III. E. came of less refined ancestry, regarding which, however, I have but meager details. He had left his home town voluntarily, and was never publicly involved in trouble. He had the same general traits as C., but was not as passionate in his homosexual relationships. He was feminine in slightly less degree. E. was also nicknamed with a feminine cognomen.

CASE IV. R., female, thirty-eight years old. Married at the age of eighteen, and when twenty had a son who is now eighteen years of age and is in apparently good health. R. is very fond of this son though she does not keep him with her. She is a pronounced type of invert at the present time, though at some previous time was probably psychosexually hermaphroditic. She proclaims her characteristics in the most flagrant way through her manner of dress which is always the most masculine suits, straight tailor hats and heavy shoes. She makes a living by prostituting herself homosexually to various women. At the time of observation she had a strong *liaison* with an in-

verted woman of less pronounced type who would take the feminine part in their relations. This woman, L., will be described in the next case. R. feels absolutely no shame or delicacy regarding her position. In the city where she spends most of her time she frequents public places dressed in a manner to attract general notice. She is heaped with contempt and scorn by the normal and feminine women who see her. She seems, however, to rather glory in this attention and adverse criticism.

CASE V. L., female, about thirty-three years old. Thoroughly homosexual though not so pronounced a type of masculinity as the foregoing. Was formerly on the stage, but now supports herself through occasionally prostituting herself to men of means. For this reason she carefully veils her character and keeps herself as attractive as possible, wearing thoroughly feminine attire. Actually, however, she cares only for women. At the time of the observation she had for some time been living with the subject of the case immediately preceding. She had been engaged in several such *liaisons* in the past, always playing the passive or feminine part. The one of longest duration was with a woman more frankly masculine than any that have come under my notice. This lover, J., was on the stage with L., and they were thus together both in and out of working hours. This other woman, J., will be described in the next case.

CASE VI. J., female probably about thirty-four years old at the time of this note. Died soon afterwards, I believe of an infectious disease, though I am not certain on this point. Never cared for or sought the company or intercourse with men. She was an able actress, comparatively well-known and earned a good living through her own efforts. In addition to her *liaison* with L., just described, through her position she had much influence over the younger girls in the company and consorted frequently with them. From time to time she would take first one, then the other, as suited her fancy. She was masculine in all her traits, smoked and drank to a considerable degree and was known by a man's name, a contraction of her christened name. The details of her heredity and early environment are unknown to me.

CASE VII. G., female, forty-eight years of age. Of artistic heredity. She had three brothers, two of whom turned out to be dissipated and worthless. While a girl she took part almost exclusively in boys' games and occupations. After reaching maturity she was attracted by older girls and women. For one

woman of thoroughly feminine characteristics she experienced a great attraction and showered many attentions upon her, sending flowers daily and performing many other courtesies. The relations were, however, entirely spiritual and after running their course the extreme attentions ceased, leaving a sound and lasting friendship. G. received considerable attention from various male suitors between the ages of eighteen and twenty-four, and while she had many experiences which might ordinarily be regarded as romantic they made no impression upon her, and her actions were dictated solely by ideas of conventional procedure. In ability and tastes G. was exceptionally versatile. She was highly artistic and did some excellent painting, though not having the opportunities for thorough training. The most salient point, however, was that she had great ability in farming, carpentry, machine work and other usually masculine pursuits. Prompted largely by a sense of conventional action she accepted a proposal of marriage from one suitor and married. This union had two children as issue. In all heterosexual relations with her husband, however, she experienced no satisfaction. Her sexual desires, undetermined to herself as they yet were, remained ungratified. The two children died at an early age, and after several years she separated from her husband, this being due primarily to dissipation on his part, but secondarily to the utter lack of sexual compatibility. She then began to support herself and engaged in several occupations from one time to another. While I am not free to give all the details, I may say that practically all her work has been of the highest standard and comprised valuable service to the community. In the course of her work she became acquainted with a woman homosexually inclined, a thorough invert, though not of such masculine characteristics as herself. With this woman, whom we will designate as D., she established a *liaison*, the two living together and remaining together in a business way through changes of position. This lasted at least fifteen years, when it was broken up by the beginning of an affection of D. for a man, which finally resulted in an engagement. This latter, which is of unusual interest, will be described under the next case.

This change was a crushing blow to G., whose health was completely deranged. Not being able to bear it in the vicinity she went away, brooding all the time and suffering acutely. She constantly meditated suicide and was only deterred from this by

hoping for some change in D.'s intention. This was finally expected when D. tired of her fiance, and arranged to come where G. was staying. This made G. very happy and she laid extensive plans for D.'s arrival and future accommodation. The happiness on her arrival, however, was but short lived, for after six weeks D. became restless and insisted on moving to another place. In this new place D. became acquainted with an inverted young woman, M., who replaced G. in D.'s affection. G. once more became disconsolate, despondent, and morbid to a degree, again practically deciding on suicide as the only possible sequel to her unhappiness. Her jealousy of M. was too intense for description. She obtained partial relief only by plunging into the hardest work. Soon after she returned to the place of her former residence, and became engaged in a work which brought to her the highest credit and praise.

After two years when she fell ill D. returned to take care of her. For some time D. oscillated between G. and M., finally settling with G., and promising to never leave her again. This was the situation at the time of recording this history. Physically G. is about normal, though she lacks the distinctively feminine features. She has hair which is inclined to be short, and an undifferentiated figure. Menses have always been light. Homosexual desires continued after the close of the menstrual period. At the time of observation G. had occasional erotic dreams, taking her back to the age of eighteen and her male suitors. Any sense of satisfaction, however, was elusive. G. has only cared for this one woman. She describes this passion, however, as the most intense possible in life and the companionship of the loved one as the greatest happiness. She can see nothing wrong in such relationships except promiscuity, and regards the bond as being as holy as the conventional marriage vow. To this very unusual history I have only to add that the woman in question is highly regarded by all who know her, and not even her relatives and closest friends have the slightest idea of her sexual characteristics.

CASE VIII. D., female, forty-four years of age. Of excellent heredity. Her appearance as a woman when dressed in a feminine way is attractive. Usually, however, she dresses in rather masculine style. Her sexual history has been related as an integral part of the preceding case. There remains only to tell of her relationships other than with G. The first was her engagement with Z., the subject of the next case. This might

be considered strange, but is explained when it is discovered that Z. was himself homosexual, though he had not had any active practices recently. The aversion that D. usually held for men was thus obviated, as, to her masculine attitude, Z. seemed feminine. I have already stated that the engagement was broken, but the attraction persisted and she continued to correspond with him and see him as opportunity offered. D.'s other infatuation, which was mentioned, was with a young woman, M., who was inclined to take the active attitude.

CASE IX. Z., male, thirty-two years of age. A decided invert, though for practical and conventional reasons he largely restrained the gratification of his desires.

CASE X. M., female, about twenty-six years of age. Decidedly homosexual and appreciably masculine. The opportunity of detailed observation has not been afforded me.

The observation of these cases has extended over a number of years, and there are others I am engaged in studying at the present time. As I stated in my introduction I am simply recording these instances, as; in view of the paucity of material, I feel they may be of value to others, more experienced than myself, engaged in the study of this difficult subject. At the present time I do not care to draw any particular deductions or present any particular theory regarding sexual inversion. I do desire, however, to direct particular attention to my cases illustrating the attraction between inverts of the opposite sex as indicating in a slight degree the psychosexual range of this abnormality.

A QUESTION OF SEX: A UNIQUE CASE.

Hirschfeld and Burchard (*Deut. med. Woch.*, December 28th, 1911) publish the case of a young woman aged 20, who, on account of her masculine tastes and character, sought advice as to her true sex. According to her mother, at the age of 3 she had played as a little boy, preferring tin soldiers to dolls; as she grew older her masculine tastes increased, and she went in for all kinds of sports, hated needlework, and amused herself by mending electric bells, watches, etc. After the age of 12, according to her own story, her interests were entirely with persons of the feminine sex, and at the age of 19 she fell violently in love with a girl. Intercourse took place, she, as far as physical disabilities would allow her, playing the masculine rôle. She

affirmed that on these occasions the orgasm was always accompanied by an ejaculation of muco-lactescent fluid from the urethra. She had never menstruated, nor had there ever been any periodic disturbance capable of being interpreted as menstrual molimina. On the other hand, at the age of 14 the voice broke, and shortly afterwards down appeared upon the lips and chin, compelling her to shave. Examination showed moderate but firm muscular development with little subcutaneous fat. The lines of the body were for the most part feminine, the hair was thick and glossy, the pomum Adami slightly prominent and the voice deep. The breasts were well developed and the secondary sexual characters were chiefly of the feminine type. The external genital organs were those of a normally developed woman and the hymen was intact. The body of the uterus was ante-flexed and the size of a plum, with a much diminished vaginal portion. The presence of ovaries or of corresponding glands could not be made out with certainty. To the right of the womb a small firm body could be felt, but it was impossible to determine whether it was attached to the uterus. Rectal examination revealed certain "resistances," perhaps corresponding to a prostate or vesiculæ seminales. Expression, speech, movements, and gait were definitely masculine.

The determining point being the ejaculation of muco-lactescent fluid, Hirschfeld and Burchard proceeded to the investigation of it in the presence of colleagues and in circumstances which precluded the possibility of fraud. They found that the statement was true and that the fluid contained living spermatozoa and corresponded in chemical composition to semen. The subject was therefore not a homosexual female but a man with active male glands and male proclivities, though with the external genital and physical habitus of a woman.

TWO TYPICAL CASES OF TRANSVESTITES.

Apropos the above unique case of Dr. Hirschfeld's the editor wishes to refer to two interesting cases which, among others, he saw in Dr. Hirschfeld's office on the occasion of his recent visit in Berlin.

The first was that of a tall, well built, well dressed woman who played the rôle of soubrette in the Berlin vaudeville houses. In reality, however, that "woman" proved to be a man with perfectly normal and well developed male genital organs. His or her (it is hard to know what pronoun to use) characteristics

were so thoroughly feminine, in her mode of thinking and acting, and sexual gratification she or he was so thoroughly a woman that she or he received from the government permission to wear female clothes and to assume in every respect the rôle of a woman.

The other case was that of a pretty, well developed, attractive girl of eighteen, who from her very childhood exhibited masculine tendencies, in most relations assumed the rôle of a boy, and came to Dr. Hirschfeld, to whom the various homosexuals and perverts appeal for help and advice, to aid her to legally assume the rôle of a man and to get permission to wear men's clothes. Her greatest wish was to have an operation performed by which it were possible to engraft the male sexual organs on her and to remove from her any signs of her femininity.

W. J. R.

REVIEW OF CURRENT UROLOGIC LITERATURE

ANNALES DES MALADIES VÉNÉRIENNES

Vol. VII, No. 10 (October, 1912)

1. Interpretation of Results, and Causes of Error, in the Wassermann Reaction. By A. Lévy-Bing and M. Dogny. P. 721.
2. The Antigen in the Wassermann Reaction. By A. Desmoulière. P. 781.
3. A Fatality Following Injections of Neosalvarsan. By Georges Lévy. P. 786.

1. Interpretation of Results, and Causes of Error in the Wassermann Reaction.

The authors take up in detail the various modifications of the reaction and come to the conclusion that the technic described by Wassermann remains the method of choice. They feel that it is of the first importance that the antigen and complement, the most important elements in the reaction, should always be used under the most precise and constant conditions. In other words:

(a) The complement should be carefully titrated against the antigen before each series of determinations.

(b) The antigen should be obtained from a (hereditary) syphilitic liver and should be tested by numerous preliminary determinations to make sure that it has a satisfactory and constant fixative power.

The authors feel that practically anyone can prepare an immune rabbit serum, can measure out hemolytic serum, can wash red cells and make an emulsion of them, etc., but that it is not everyone who knows how to determine the exact conditions for titrating an antigen or a complement and who can read off the results thus obtained. These latter are very difficult manifestations which demand on the part of the observer a degree of personal competence which is granted to but few experimentors. Such men are not only capable of understanding the capital rôle played by the two principal elements (which in themselves comprise practically the entire reaction) but are also fully aware of the importance of the results which they must furnish the physician.

In order to avoid discrepancies resulting from a faulty reading of the results it is much to be desired that investigators adopt a constant method of interpreting the reactions, no matter which particular method they choose to employ.

The authors object very strongly to the present state of affairs in which the term "Wassermann Reaction" is made to cover many different procedures which vary greatly in their scientific value. If the name of Wasserman is to be retained for the general principle of complement deviation as applied to the diagnosis of syphilis, it is absolutely necessary to indicate exactly the technic employed in each case so that one may tell how much reliance to place on the results obtained.

The various attempts at improving the Wassermann reaction have aimed at a simplification of the manipulations rather than at a perfection of the technic. The writers feel that it is not by shortening

the time of the procedure, or by employing extracts of normal organs, or by trying fresh serum, or by comparing heated with non-heated sera, that more precise and more positive results will be arrived at. They believe that further research into the nature of the antigenic substance will not only be rewarded by a much more sensitive antigen but will also enable us to determine the composition of that enigmatic principle which we have designated "antibody." They look forward to a not far distant future when the perfected Wassermann reaction will furnish precise and constant results and will enable us to follow the syphilitic reaction step by step as it unfolds itself before us. It will then offer us a means not only of diagnosis but also of prognosis and of treatment.

2. The Antigen in the Wassermann Reaction.

The author reports the results of some of his researches into the nature of the antigen in the Wassermann reaction. He has succeeded in preparing a substance which gives 100% positive results in active cases of syphilis. He proceeds as follows:

The liver of a syphilitic fetus is macerated with absolute alcohol for 48 hours. When dried, the powder thus obtained has a very feeble antigenic and a very high anticomplementary action. This powder is then thoroughly extracted with ether, dried, macerated with absolute alcohol for 48 hours, and filtered. The liquid thus obtained has neither antigenic nor anticomplementary power. Some pure cholesterin is next added to this liquid and the resulting solution diluted with physiologic saline. This causes a cloudy, but perfectly homogenous, mixture which has no anticomplementary power but has an antigenic action far superior to that of any antigen obtained by the usual methods.

Desmoulière finds that a solution of pure cholesterin in absolute alcohol when diluted with saline causes a marked precipitate to form, and that such a mixture has but a very poor antigenic action. He therefore assumes that the cholesterin in the powerful antigen first described exists in a peculiar physical state or else in some combination in which it does not occur in the simple alcohol-saline solution.

3. A Fatality following Injections of Neosalvarsan.

Lévy reports the case of an alcoholic who was in the first stage of syphilis. He was given 4 injections of Neosalvarsan at intervals of about one week (0.45 grams, 0.6 gms., 0.6 gms., 0.9 gms.). The last injection, like those which preceded, was well borne, but 36 hrs. afterward there appeared a scarlatiniform eruption which affected in turn the arms, the legs, the trunk, and the face. Desquamation began on the fifth day and was profuse over the body.

From the sixth day on fever set in, the temperature varying between 101.3° and 104° F., and the general condition became poor. The tongue was dry, dyspnea intense, pulse irregular, varying from 100 to 130 per minute. Heart and lungs were negative. The urine was

normal in amount and contained no pathological elements; a test for arsenic was not made. The liver was not changed in size but was slightly tender to pressure.

The patient remained in the same condition for nine days. He died in coma on the fourteenth day after a violent fit of dyspnea. There was no autopsy.

The author attributes the death of the patient to the fact that the liver tissue was so degenerated by the prolonged alcoholism (2 liters of wine and 2 absinthes daily for twenty years) that the organ was unable to handle the arsenic which was injected into the system. He feels that the last dose (0.9 gms.) was too large and has therefore returned to the smaller doses of Neosalvarsan.

FOLIA UROLOGICA

Vol. VII, No. 3 (Oct., 1912)

1. An Unusual Case of Renal Staphylomycosis with a Small Paranephritic Abscess. By G. Ekehorn. P. 131.
2. The Abortive Treatment of Gonorrheal Urethritis. By Hugo V. Feleky. P. 147.
3. A New Urinary Antiseptic. By Gustav Fischer. P. 161.
4. A Case of Protracted Anuria following Bichloride Poisoning. By G. A. Kolossow. P. 165.

1. Unusual Case of Renal Staphylomycosis.

The author reports the case of a boy of sixteen who had been ailing for two or three months before his admission to the hospital. While under observation he complained of attacks of pain in the right side and showed an occasional slight rise in temperature.

Physical examination revealed a hard, tumor-like swelling corresponding to the lower pole of the right kidney. The rest of the organ was quite normal in shape and consistence. During the febrile attacks the mass seemed to become larger and was more tender to pressure. Repeated urine examinations were negative.

Rest in bed caused no improvement in the patient's condition. On the 18th day his temperature rose to 101.8° F. The diagnosis of renal new-growth was made and surgical intervention decided upon. At operation a large firm tumor was found, as expected. The renal capsule was very hard and much thickened and contained a small abscess cavity about the size of a thimble. The whole appearance was that of renal actinomycosis. Nephrectomy was done and the patient recovered.

On pathological examination the "tumor" was found to consist entirely of granulation tissue and new formed connective tissue. There was no trace of actinomycosis. The capsule, on the other hand, was found to contain numerous small abscesses and necrotic foci from which staphylococcus pyogenes aureus was recovered in pure culture. The infection was undoubtedly hematogenous in its origin.

2. Abortive Treatment of Gonorrheal Urethritis.

According to v. Feleky, the abortive treatment of gonorrhea is easily the method of choice. The patient should be taken in hand in the very first stages of the disease, viz., when the mucous membrane is just beginning to show signs of swelling, while the secretion is slight in amount and mucus in character, and while the itching and burning at the meatus are still very mild in degree,—in short, at a time when the subjective and objective symptoms are at a minimum. By instituting treatment thus early we can not only effect a rapid cure but can also regularly prevent the development of a posterior urethritis and secondary complications.

Abortive methods previously published, such as irrigations, instillations, prolonged injections, are very rarely successful, are irritant and may cause injury to the mucous membrane. Severe complications have been induced by their use. In this connection the author suggests that the urethroscope offers a very satisfactory instrument for direct topical applications to the pars anterior. The tube should admit of a relatively large tampon. In very early cases silver nitrate 2½% gives the best results. Protargol 10%, or largin or albargin in glycerin, may also be used. One or two applications are sufficient.

The topical treatment should be supplemented by hand injections. On the first day liquor alsoli, 1%, should be used. Later on ichthargan, 0.1 to 200, and zinc sozoiodolate, 1 to 200, in alternation. The patient should rest as much as possible.

The author has tried this abortive treatment in 446 appropriate cases and finds that all symptoms, characteristic of gonorrhea, were relieved in from four to thirteen days. A still longer period of treatment was necessary for the complete disappearance of all symptoms.

No complications were produced by the author's method of treatment, and even where the disease was not aborted the course was shorter and much more favorable than it would have been had the usual methods of treatment been employed.

3. A New Urinary Antiseptic.

Fischer has tried out the new urinary antiseptic *Amphotropin* (hexamethylentetramin camphorate) in v. Feleky's clinic in Budapest. He finds that the combination of urotropin with camphoric acid has a more powerful disinfectant action on the urinary tract than that of any drug heretofore employed. Excellent results have been obtained in all affections but tuberculosis. Untoward effects were not observed. The dose is 0.5 to 1 gram t.i.d., in tablet form.

4. Protracted Anuria Following Bichloride Poisoning.

Kolossow describes a case of poisoning in which anuria lasted 6 to 7 days without causing uremic symptoms. He discusses his and other cases and concludes that pathologically there is no special "bichloride kidney." Various lesions may be found in the organ, giving

the picture either of parenchymatous or glomerular nephritis. Occasionally calcareous deposits occur. Clinically such cases show only albumen and formed elements in the urine when the intoxication is of a mild degree. More severe poisoning causes anuria and uremia. The latter is generally fatal.

Edebohl's decapsulization is to be done only as a last resort. Results such as those obtained in cases of eclampsia cannot be hoped for in this condition.

ZEITSCHRIFT FÜR UROLOGIE

Vol. VI, No. 11 (1912).

1. Cystoscopic Errors. By Franz Weisz. P. 87.
2. A Case of Dystopic Kidney. By A. F. Lukina. P. 895.
3. Malignant Simple Tumors of the Testicle. By Arnaldo Vecchi. P. 906.

1. Cystoscopic Errors.

The author discusses some of the difficulties met with and mistakes made, in the practice of cystoscopy. At the very outset it may be almost impossible to pass the cystoscope into the bladder on account of strictures or prostatic hypertrophy. Various devices have been introduced to enable the operator to get by such obstacles. As a result of these manipulations bleeding may occur and this offers further difficulty by observing the cystoscopic picture.

Furthermore, for one reason or another (irritable bladder, contracted bladder) it may be impossible to fill the organ sufficiently for a thorough examination. In such cases analgesics may be necessary or even deep narcosis; or, if a fistula is present, recourse may be necessary to air distention. Oxygen gas, which has been recommended as having, in addition, therapeutic value, has not given good results in the author's hands.

Bleeding from the ureter orifices or bladder wall is often a very serious obstacle to a thorough examination. It is a good plan to defer cystoscopy if possible until after the hemorrhage stops spontaneously; otherwise an irrigating cystoscope may be used. The latter, however, is by no means always efficient, as the outlet very frequently becomes plugged with blood clots.

There may be great difficulty in distinguishing between cases of chronic cystitis and new growths of the bladder. If we consider that in the former condition the mucous membrane may undergo much thickening and polypoid overgrowth and that in the latter the tumor may be flat, diffuse, and infiltrating, the reason for an error in differentiation becomes apparent. As a rule, however, mucous membrane thickenings tend to be diffuse and multiple while new growths are single and circumscribed. It should be borne in mind that tumors from without

(prostate) may grow into the bladder and cause the symptoms (bleeding), as well as the appearance, of real cystic new growths.

Blood clots, owing to their long immersion in the bladder urine, lose their red color, and become firm in consistency. As a result they have been mistaken for tumor, polyp, and even echinococcus cyst of the bladder. Ureterocele may simulate tumor. Blood and pus clots, especially when contracted, and round or oval, may be mistaken for stone. Blood clots are brown to leathery yellow in color; pus clots are pure white.

Stones and tumors may grow so large as to obstruct the examiner's view. On the other hand, stones, tumors, polypi, and foreign bodies have actually been overlooked in a cystoscopic examination. The most common reason for this is that they were located in a mucous membrane diverticulum of the bladder wall or else in a pouch on the floor such as is often caused by hypertrophy of the prostate.

2. A Case of Dystopic Kidney.

Lukina reports the case of a servant girl, 32 years old, admitted to the hospital because of a painful tumor in the abdomen. The patient first noticed the mass two months previously, when, after lifting a heavy weight, she was seized with severe cutting abdominal pains which confined her to bed for several days. Urination became abnormally frequent; bowels were always severely constipated. Any attempt at doing hard work caused dull drawing pain. The patient suffered much distress whenever she ate meat.

The girl showed a general neurotic make-up. Vaginal examination revealed the presence of a firm tumor in the pelvis, the lower rounded border of which could be felt in the left vaginal fornix. The mass had no connection with the uterus or adnexa. By abdominal palpation the tumor, which was found to be situated below and to the left of the umbilicus, was made out to be elliptical in shape, firm in consistency, and only slightly movable. There was diminished resonance on percussion of the tumor; inflation of the colon showed that gut overlay the mass. The lower pole of the right kidney was palpable on deep inspiration. The left kidney was not in its usual situation.

Cystoscopy revealed the presence of two ureteric orifices. Introduction of a catheter (with mandrin) into the left ureter was not very successful as the instrument could penetrate but 10 cm. The diagnosis of ectopic kidney was made and operation decided upon.

On opening the abdomen the right kidney was found in its normal position but much enlarged and lobulated. The left kidney was absent above but was found, retroperitoneal, lying against the promontory of the sacrum and the left lumbosacral articulation. It was decided to remove the kidney as it was immobile and its vessels and ureter very short. The organ was found to be supplied by 3 arteries and 2 veins; there was a venous plexus in front and below; there were adhesions to

the surrounding parts. The patient's recovery was uneventful. One year later her symptoms had entirely disappeared; she had gained in weight and was able to perform all her duties in a satisfactory manner.

Lukina groups the symptoms of a dystopic kidney, in a general way, as follows:

1. Symptoms due to the malposition, as such, of the kidney and resulting from the mechanical or reflex disturbance of the functions of the neighboring organs, e.g., obstipation, tenesmus, abnormal frequency of micturition, etc.

2. Symptoms due to the underdeveloped condition of the dystopic kidney and resulting from its greater exposure to various insults and infections than in the normal kidney. In this category we find the pyonephroses, the nephritides, the increased sensitiveness to pain, etc.

3. Allied conditions due to the fact that the dystopic kidney is often but one of a number of errors of development in the organism. Mental instability (psychoses of various sorts) as well as physical mal-developments may occur in this connection.

3. Malignant Simple Tumors of Testicle.

In this number Vecchi discusses the histogenesis of his so-called large-celled tumors and summarizes as follows:

The large-celled tumors result from an atypical development of embryonic or mature seminal epithelium and should therefore be regarded as epitheliomata even though they possess certain special morphological characteristics which we are not accustomed to find among epitheliomata of other organs and which are probably dependent upon the mesodermal origin of the epithelium from which they arise.

On the other hand, large-celled tumors may represent mixed or embryonal tumors which have become overdeveloped in one direction, that is, in which a derivative of the mesoderm (seminal epithelium) has obtained supremacy over the remaining constituents of the growth.

In this double source of origin the author points out a resemblance between his large-celled tumors of the testicle and other mesodermal tumors, such as osteoma, fibroma, enchondroma, and myoma.

MISCELLANEOUS ABSTRACTS

Intermittent Fever in Tertiary Syphilis.

According to Pozzilli (*Gazz. degli Ospedali*, July 4, 1912) fever is fairly common in tertiary syphilis. It is usually intermittent but may be of the remittent type; in the morning the temperature is normal but in the evening it may reach 104° F. and be accompanied by chills and sweats. The author reports 3 cases.

The first was that of a merchant of 36 who suffered from a fever

which resisted the administration of quinine and salicylates. The patient was in very poor condition and was losing weight. Syphilis of the lungs was diagnosed and intravenous injections of bichloride of mercury (0.01 gms.) begun. The patient was entirely cured after 4 injections.

The second patient contracted syphilis 6 years ago. He was running a temperature and complained of pain in the shoulders, knees, and feet. Five intravenous injections of bichloride effected a cure.

The last case was a woman of 29 who presented an ulcer of the breast which yielded to specific treatment. Following this the patient lost weight and her liver became enlarged and painful. The diagnosis of syphilitic hepatic fever was made. All the symptoms cleared up after seven mercury injections.

606 and Woman's Milk.

Caffarena reports (*La Pediatria*, No. 4, 1912) the case of a nursling with hereditary syphilis who was cured of all manifestations by suckling his mother, she having received injections of 606. Examination of the milk showed that arsenic was being eliminated.

A detailed chemical investigation of the milk of a woman who had been treated with 606 revealed the fact that when the drug was administered intravenously its elimination took 2 to 3 days, while if it was given intramuscularly it took from 10 to 12 days.

The author agrees with other writers in attributing the efficacy of this indirect treatment of congenital syphilis to the action of arsenic on the mother's milk. It is best to give several intramuscular injections so that the child can be kept longer under the influence of the medication.

In cases of severe congenital syphilis it is wisest to inject the child directly with the salvarsan.

A Case of Chancre of the Scalp Located on the Occiput.

Chancres of the hairy skin are exceedingly rare. Rajat (*Centre Médical*, May 1, 1912) has had the good fortune to observe a case of chancre of the scalp in which the mode of infection was of interest. The subject was an opera singer of 45 who presented a papulo-crusty erosion, of 12-15 days' duration, in the region of the occiput. He recalled that some time before, while putting on a wig, he injured himself on the back of the head. He paid no attention to the matter but 10 days later noticed a painless pustule which kept enlarging until it reached the size of a franc piece. Stained smears revealed the presence of *treponemata*. The lesion healed under mercurial treatment.

The author points out that the wig which was responsible for the infection must previously have been worn by a person suffering from pustular syphilides of the scalp.

A Rare Case of Syphilitic Infection with Extragenital Chancre.

Chancre of the gum, a rare location for a primary lesion, is generally due to contamination from tooth brushes, etc., or from dental instruments. Sauvage reports (*Gazette médicale du Centre*, Jan. 1, 1912) an additional case of gingival chancre following an injection of cocaine and the extraction of the first right upper molar. The incubation period was about a month and a half; the submaxillary adenopathy was the first symptom observed. A roseola followed. The course of the disease was rather rapid: from the time of contagion to the disappearance of the roseola was two months and a half. The author concludes his paper by insisting on perfect asepsis of instruments used by dentists.

Abscess of the Corpus Spongiosum.

Timopheiev (*Vratchebnaia Gazeta*, July 8, 1912) reports the case of a man of 23 who was ill for four days. He presented a swelling of the posterior two-thirds of the penis, giving the organ a fusiform appearance. The tumor occupied the spongy part of the urethra; the overlying skin was blanched and edematous; the urethral discharge contained staphylococci. The sound passed freely through the region of the tumor but met with a stricture just beyond it. Temperature was 104°, patient very septic. There was no history of gonorrhea or of direct trauma. The patient attributed the cause of his condition to a pollution he had while in the prone posture. Incision of the swelling allowed of the escape of the fetid pus containing staphylococci, gonococci, and colon bacilli.

The author reports a similar case in a young man of 24. In this instance there was a tumor occupying the inferior aspect of the penis just behind the glans. The overlying skin was white and edematous. The patient's temperature was 102.2° F. Incision brought forth pus containing gonococci and staphylococci.

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THE ORGANIZATION AND EQUIPMENT OF AN OFFICE FOR GENITO-URINARY WORK

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THERE has been a marked tendency of late years to improve office conditions—to make them convenient, commodious, sanitary and attractive in more ways than simply by ornate decoration. Utility and cleanliness are objects to be attained whatever the cost.

In the belief that some late experience in this line may be of interest and service, the following descriptions are submitted.

The floor plan (Fig. 1) shows the arrangement of rooms, corridors, windows and entrances. The latter lead from the outer corridor of the building into the two reception rooms, for men and women. All rooms have outside light excepting these two latter and the cystoscopic room.

The rooms requiring artificial light are supplied with the newer Mazda electric lamps; clusters for the reception and consultation rooms, and single 300-candle power lamps for the operating rooms, controlled by switches conveniently located.

It will be seen that from the reception rooms the corridor gives direct access to the whole suite, without requiring a patient to pass through any one room to get to another. This has proved a very gratifying feature of the architecture.

The short passage way (C) between the two reception rooms not only makes these accessible from one another but enables the attendant in either room to see and receive patients entering the other.

The floor of the corridor and of the laboratory are covered

with heavy linoleum; the three treatment rooms are floored with white tiling with baseboard of marble; the remainder are covered with rugs.

The three treatment rooms are finished in white enamel paint, wood work, ceiling and walls. They are equipped with sanitary

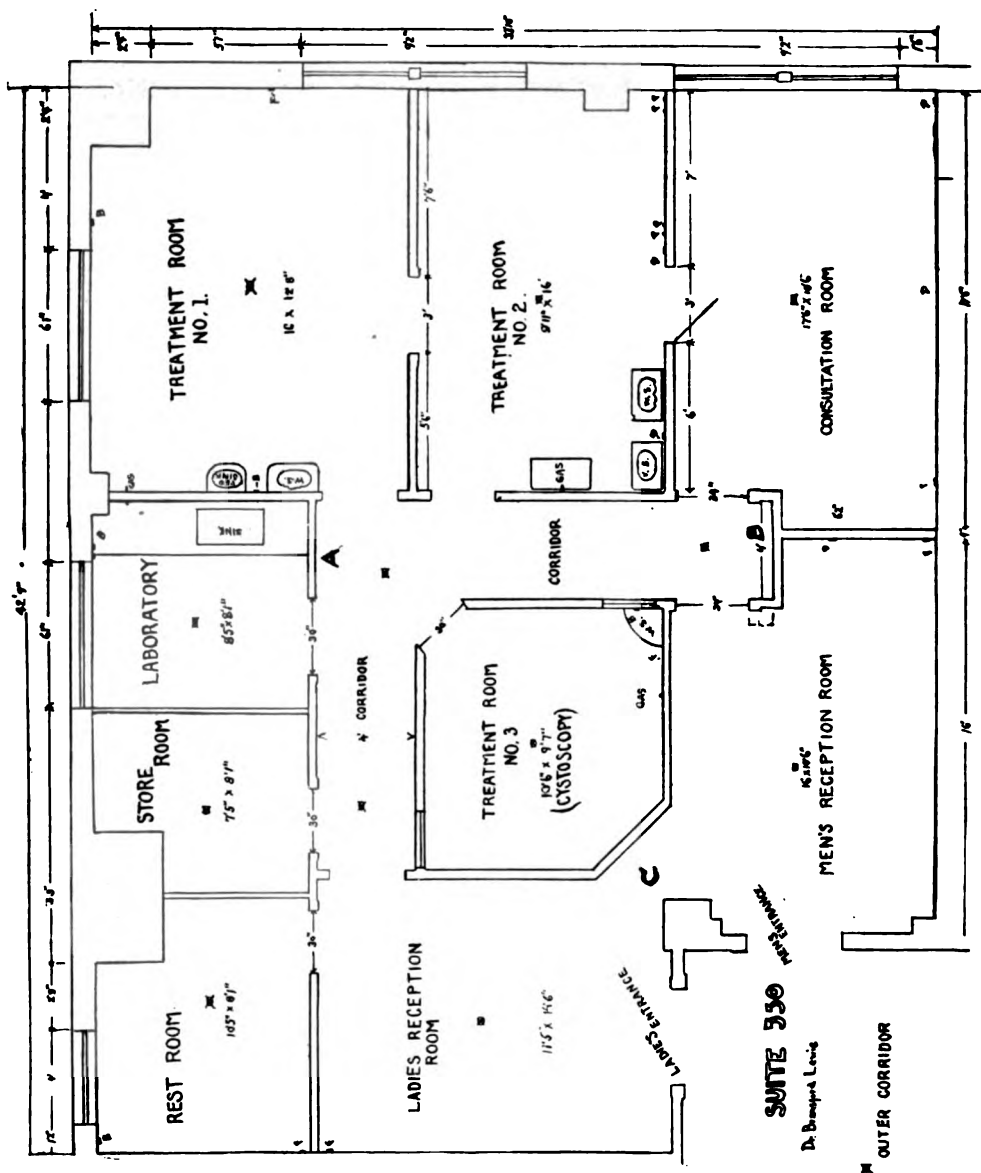


Fig. 1. General Plan of Offices.

plumbing, with foot-levers for hot and cold water at the wash-stands.

Objectionable odors from urines have been obviated by the very convenient plumbing arrangements adopted (as seen in Fig. 7 and 9). Adjacent to the washstand in each treatment room is



Fig. 2. Men's Reception Room.

a special white-enamel sink, $4\frac{1}{2}$ inches deep, above which are glass shelves for holding both clean and used urine glasses. The patient uses the glasses at this sink; and when specimens are no



Fig. 3. Women's Reception and Rest Room.

longer needed the glasses are placed under the open faucets and are washed automatically.

The sterilizing arrangements adopted have proved most con-

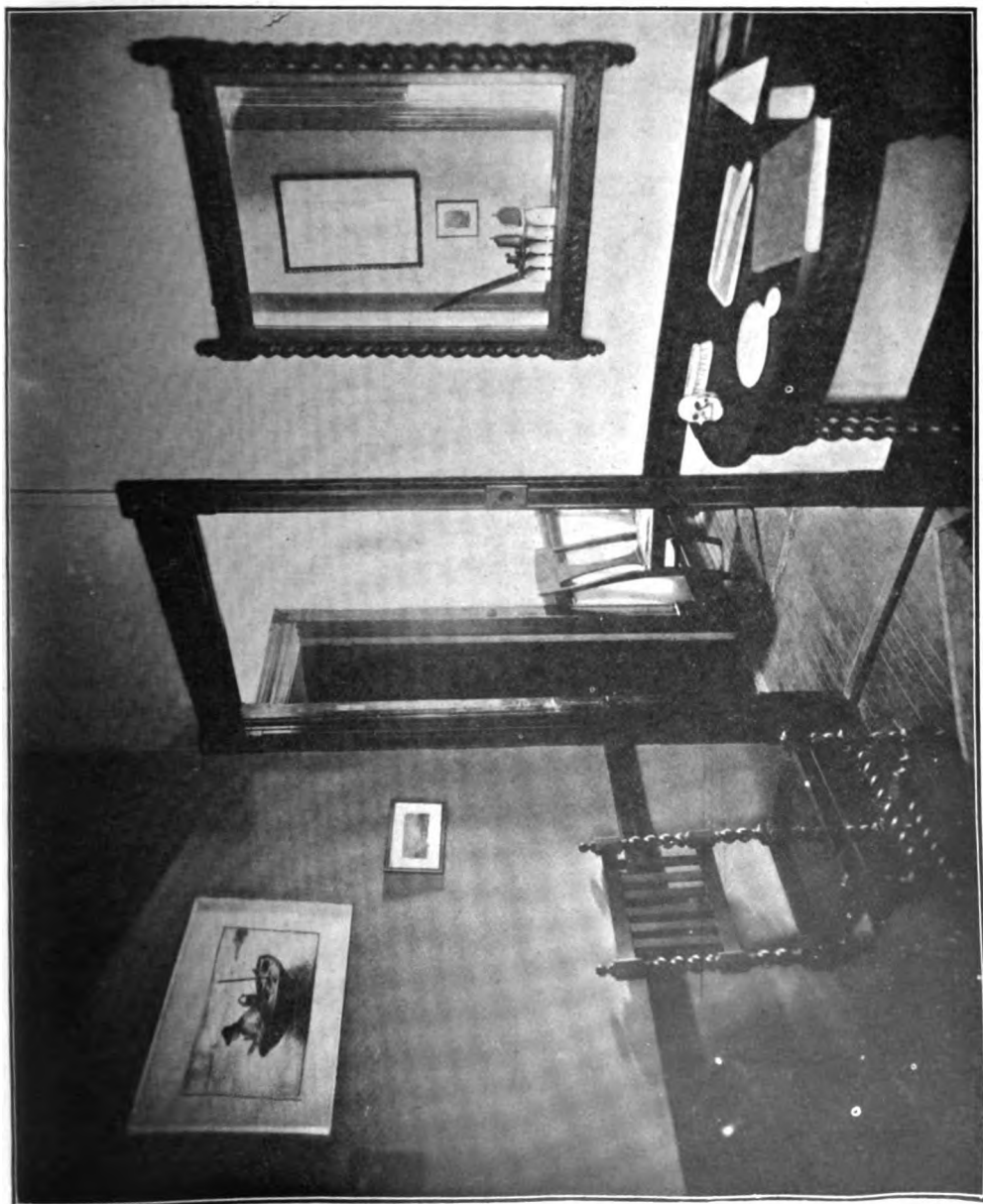


Fig. 4. Rest Room.

venient. Instead of having a central sterilizing plant in a hall or a separate room, each operating room is equipped with its own sterilizer and urns for hot and cold sterile water. A trough or

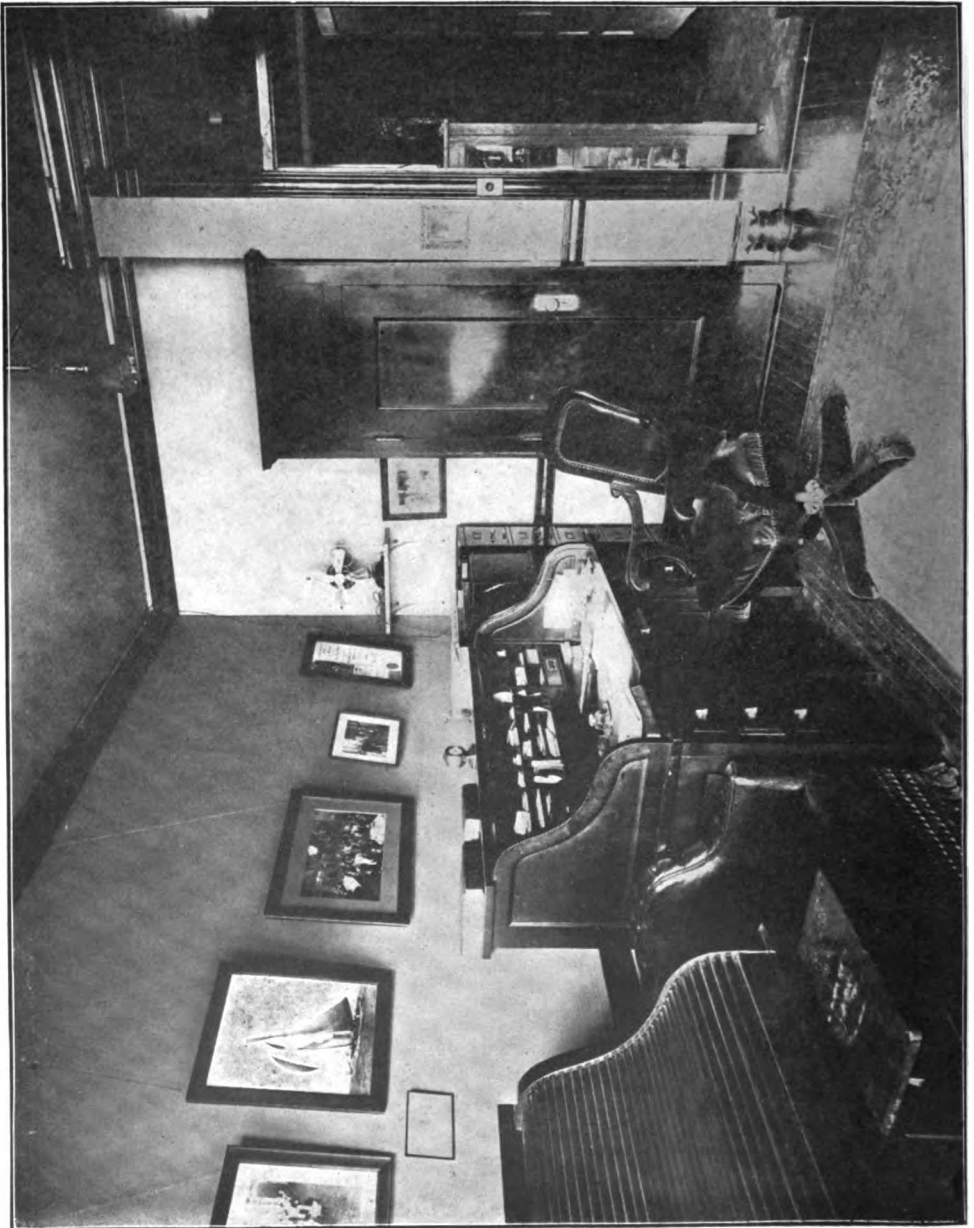


Fig. 5. Consultation Room.

drip-pan has been added and hung underneath the urns (Fig. 7), to facilitate the cooling of hot sounds or instruments. When removed from the boiling water of the sterilizer, cold sterile water is poured from the cold water urn over each instrument, where-

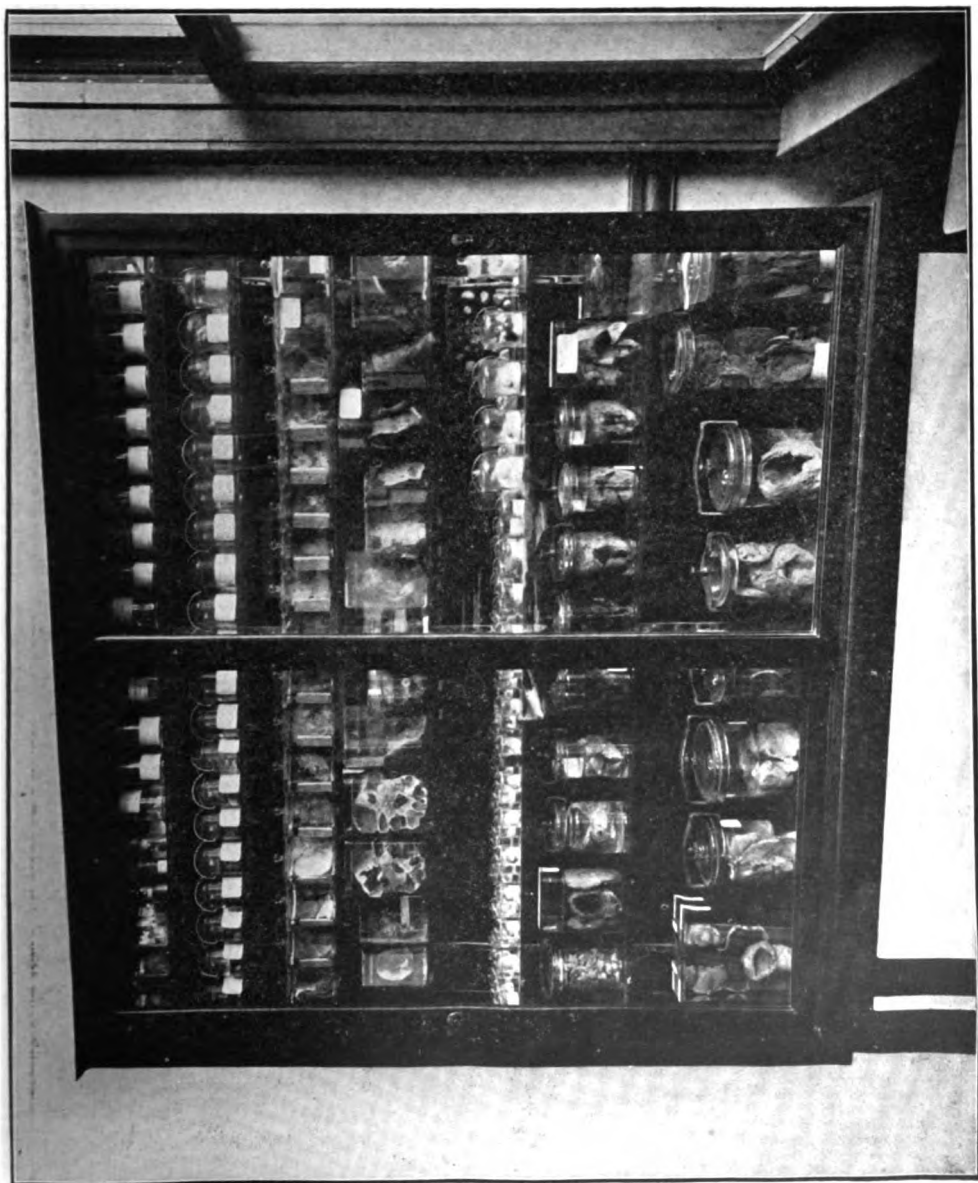


Fig. 6. Specimen Cabinet.

upon they are placed in a sterile dry tray and are ready for immediate use. The urns are heated (gas heat) alternately from

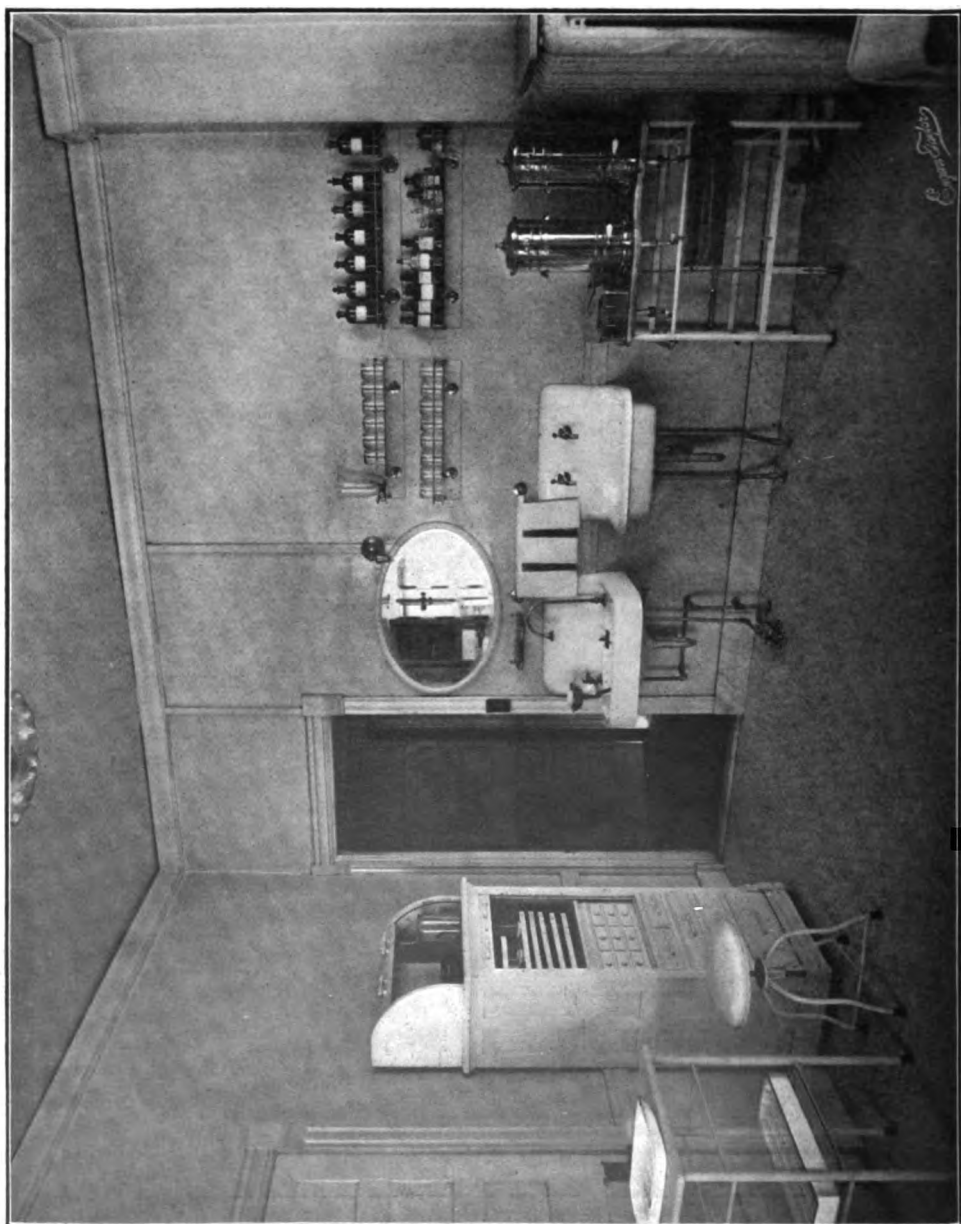


Fig. 7. Treatment Room No. 1—West View.

day to day, thus affording a supply of both hot and cold sterile water, always.

A sanitary drinking fountain is installed on each wash stand (Figs. 7 and 9). Applying his mouth to the bubbling water, in-

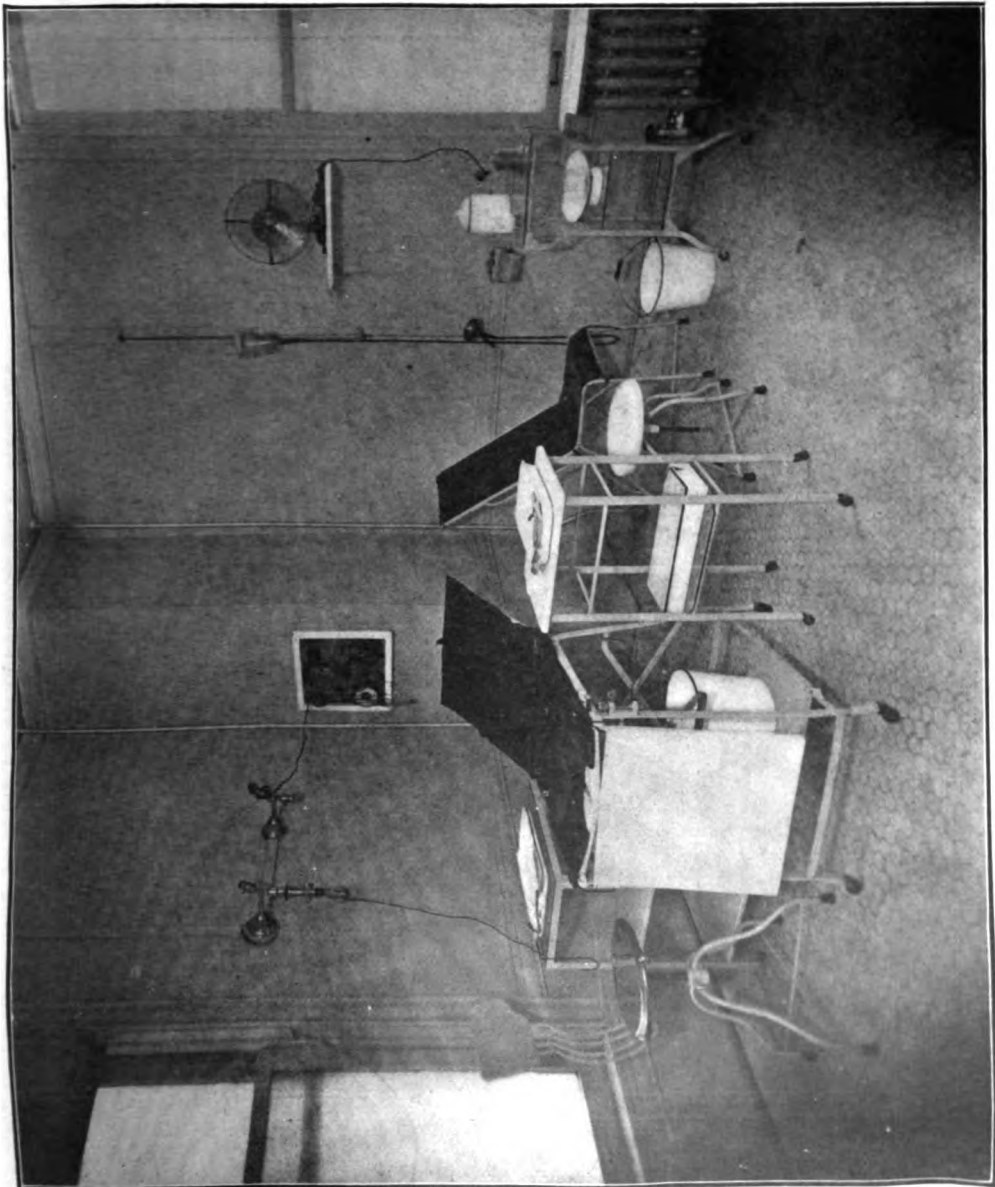


Fig. 8. Treatment Room No. 1—East View.

stead of the rim of the cup, a person is immune from any possibility of contagion, even though a syphilitic drink just ahead of him.

Some thought was applied to devising the most serviceable

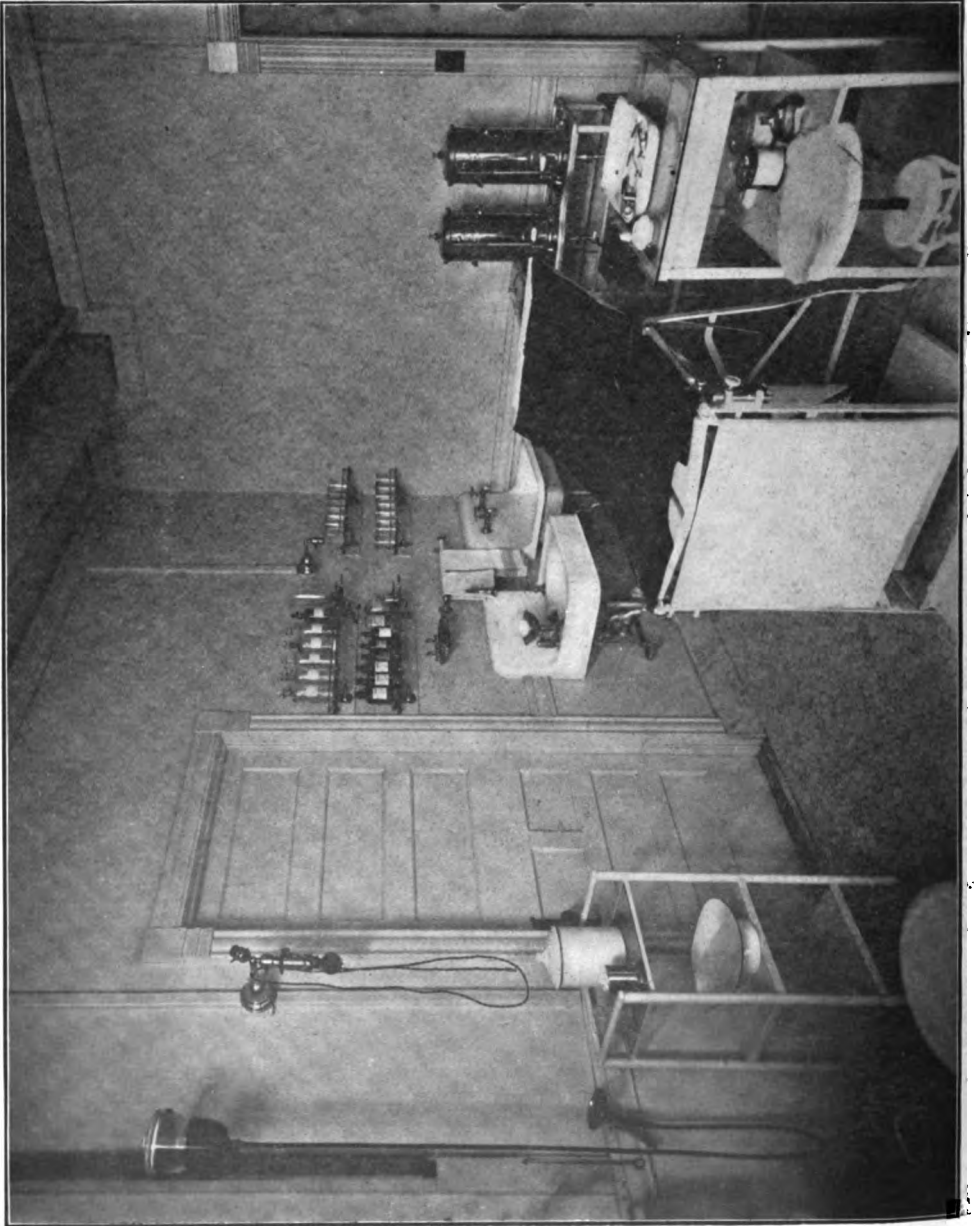


Fig. 9. Treatment Room No. 2.

cabinets for various purposes—for cystoscopic instruments, for reprints, journal extracts, for linen and for pathological specimens. The result is shown in the illustrations (Figs. 2, 6 and 10). While

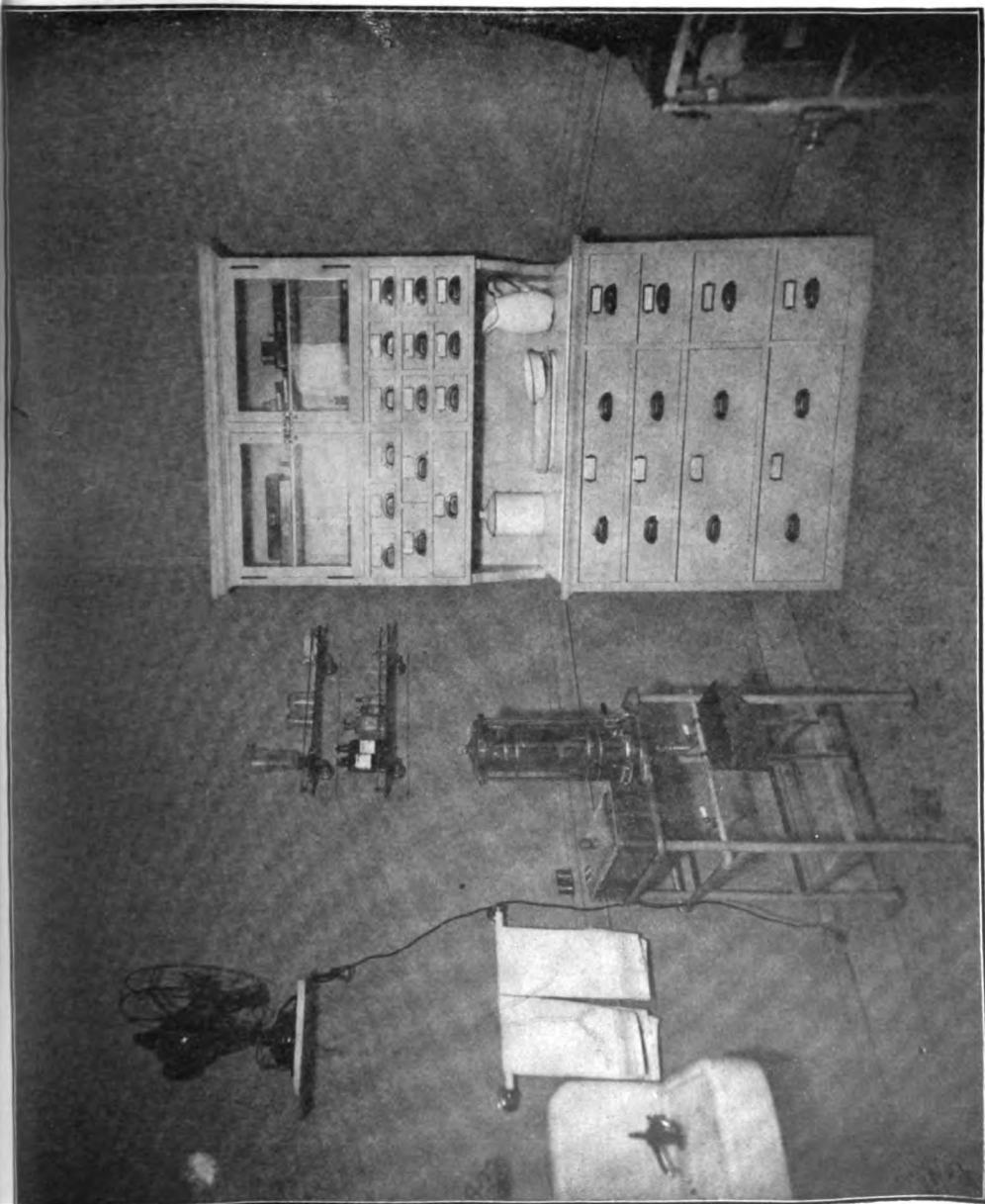


Fig. 10. Cystoscopic Room.

some may criticise the plan of having specimens exposed to view in the consultation room, it has been found of material assistance in enabling patients to understand the nature and other features of

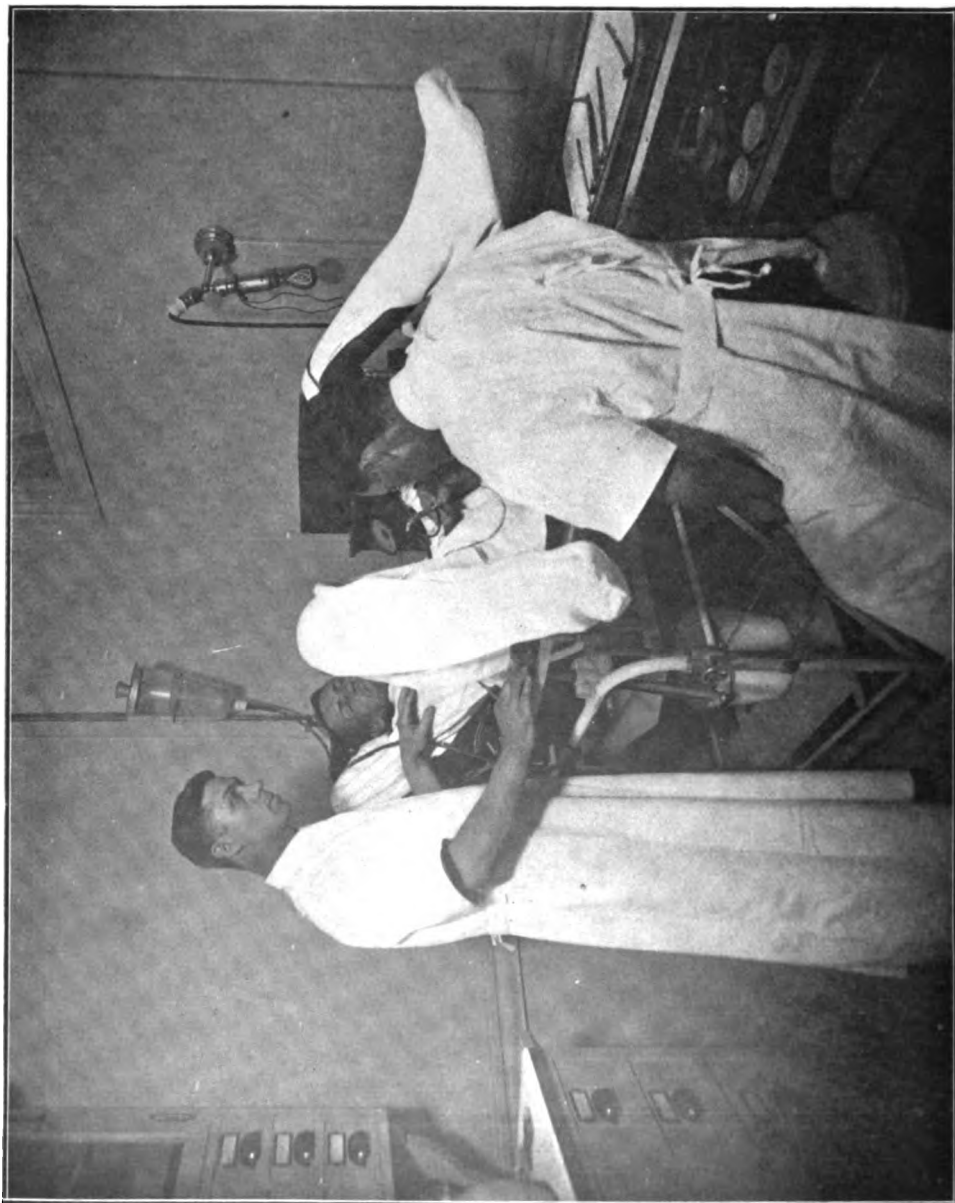


Fig. 11. Cystoscopy and Arrangements.

their malady, usually difficult for them to comprehend; moreover, it has not been without interest to visiting physicians. The specimens are so arranged and labeled that it is not necessary to take them out of the cabinet for observation (Fig. 6).

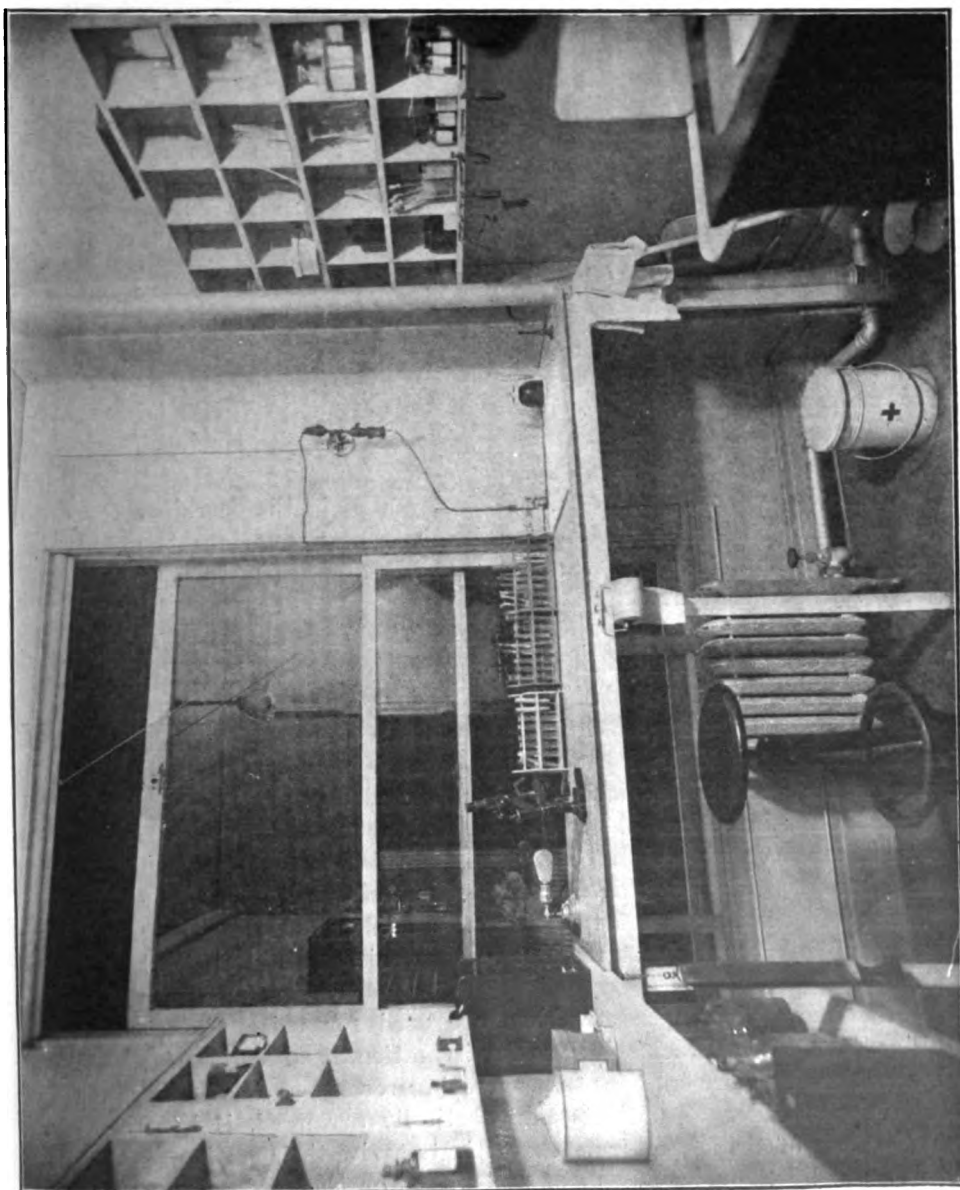


Fig. 12. Laboratory.

Each operating room is fitted with a rheostat for electric lighting (for endoscopy, etc.) and with surgical table and irrigating chair for routine treatments and irrigations, soundings, etc. The plan of supplying full equipment for each treatment room saves much time and labor in running back and forth for needed instruments, stock solutions, dressings and local anesthetics.

The rest room has proved to be of service after cystoscope and minor operating.

The store room is furnished with a large cabinet of shelves, drawers, and lockers, extending to the ceiling; and serves for the storage of linens, batteries, supplies of reprints and also as a hat and wrap room for assistants and visiting physicians. It is a very serviceable part of the suite.

The features found advantageous for the laboratory are: Commodious space, abundant light (a six-foot window), marble-top bench and sufficient shelf room.

An electric centrifuge is found most reliable and expeditious for urine sedimentation. For twilight or dark days, artificial light is provided in the shape of a ground-glass electric bulb, with a heavy, firm base (Fig. 12).

Hat and coat racks are placed at A and B in the corridor, and patients are not expected to carry hats or wraps into the treatment rooms. A wall-rack with mirror is supplied in each of the latter for coat and vest.

White enameled wares are used exclusively as utensils. A device that is inexpensive but very serviceable is a roll of toilet paper (Figs. 8 and 12) hanging convenient to the irrigating chairs. It is not only convenient for patients to use after massages, etc., but a double layer of such paper is always interposed between the genitals and irrigation pan, contributing to security against office infection. It is desired that no patient's genitals come in contact with basins. Such a roll of paper is convenient in the laboratory, also, for the cleansing of microscope lenses. The "Meinecke" Simplex Sanitary bed-pan is used as an irrigating basin and is without doubt the best for convenience and universal fit.

Ordinary plain glass tumblers are used for urine glasses (Figs. 7, 9, 10). Stock solutions for irrigation, local anesthesia, lubrication, etc., are kept in each operating room.

A card index of patients, alphabetically arranged, is kept at the door of the laboratory. As patients arrive their cards are taken out by the office attendant and placed on the card cabinet

in proper sequence. Every treatment given, whether in the office, hospital, or at the home of the patient, is registered on his card; likewise the progress of his case, the charge and payments; so that not only is an up-to-date registry of his condition maintained, but the book-keeping is very simple. The charges made, the amount paid to date, and the balance due are readily evident. Monthly statements are made up directly from these cards, and aside from a list of such statements, no further "book-keeping" is required.

The clinical histories are kept in books devised for that purpose—so arranged by interlinings and pointed questions that the least possible amount of writing suffices to embrace the category of questions and answers desired. Pages thus used are recorded on the alphabetically filed card, so that if a patient comes several years later his cards, clinical history and treatments given are at once accessible when he announces his name.

It is found entirely worth while to maintain systematic methods of this sort. The little extra labor that it costs at first is more than compensated by the satisfaction realized in later years of being able to utilize the data in many ways.

If graduating physicians were given more instruction along lines of business principles and methods it would doubtless rebound to their own credit and prove of advantage to their patients. The methodic, successful practitioner is the one who can give the best service. An ample income permits and justifies liberal expenditure of time and money for travel, for further post-graduate instruction as well as for the more liberal furnishing of equipment and other requisites of an active and progressive medical practice.

DIVERTICULA OF THE BLADDER WITH REPORT OF A CASE

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DIVERTICULA may occur in any of the mucous tubes of the body, particularly when, by virtue of mural weakness, extraneous traction or distal resistance, the expulsive force and physiologic emptying power are mechanically embarrassed.

Extrusions are not infrequently seen by the surgeon in operations on the alimentary tract, and indeed here, as in other mucous surfaces of the body, diverticula may be congenital or acquired.

That diverticula should occur more frequently in the urinary bladder than elsewhere, would seem to be founded upon rational and mechanical principles. For, developed embryologically from a tube, the allantois, destined to subserve a complex three-fold duty; first, of dilatation, proximally to constitute the bladder; second, obliteration, mesially to form the urachus, and third, vascularity, distally to connect with the placenta, even minute pathological deviations from the original fetal design would result in adult vesical anomalies which are readily transferred into an abnormal state by the embarrassment of urination seen so commonly in the elderly male.

Straus¹⁰⁵ reports the history of a 29-year-old demented man who suffered from cystitis and very severe and painful strangury. Sectio alta was performed, and a triple urinary bladder was found. Between the urinary bladder and the symphysis, two cavities were found behind each other, both showing the complete structure of the bladder and opening with a smooth neck into the neck of the urinary bladder.

When these accessory bladders were filled, they pressed upon the neck of the urinary bladder thus causing the severe symptoms. These accessory bladders were opened and left open, a catheter was left in the urethra leading into the main bladder. The favorable course of the disease showed that both ureters were emptying into the main bladder.

The malformation developed in such a way that the two cones of the allantois, originating from the lower wall of the rectum and developing into the bladder, became divided.

Synonyms of diverticula of the bladder are vesica bi-parti, vesicae accessoriae, vesica supernumerica, cystocele interna, cel-

lules vésicales, poches, kystes, chatons, appendices, cavities accidentelles, taschen, zellen, pockets, pouches, saccules, extrusions.

The case which the writer wishes to report is that of J. H. G. Nov. 7, 1911, 65 years of age, M., agent. For about ten years past, he has had some trouble in making water, but for the last year has experienced more than the usual amount of difficulty, having to get up several times at night and never seeming to evacuate the bladder entirely. He has consulted several physicians who pronounced him to have an enlarged prostate and advised him to seek surgical aid. Last spring he lost a considerable amount of blood on one occasion, and now and then he notices a slight tinge. The patient has also noticed that the greatest difficulty is in starting the stream, which at times requires several minutes. He has noticed that on several occasions when the stream is started, it is at times markedly interrupted (such as would occur from a ball valve or a stone) and also that riding, driving, or rapid walking gives him a constant desire to urinate.

He drinks freely of water and for several months past has been taking large doses of urotropin. His general health is pretty good and weight is about the same.

Examination through the rectum shows the prostate not enlarged, rather hard and dense, but movable, no glandular involvement. The urethra admits a 12 F. but is normal in length, residuum on Nov. 9 is two ounces and clear, on Nov. 11 is sixteen ounces, which is creamy in color, and filled with pus cells and shed-off bladder epithelium. The color immediately attracts the patient's attention and he states that when making his own water it is always clear, amber color, and he does not understand why on this catheterization it is of a creamy yellow appearance.

On account of the deep urethral narrowing cystoscopic examination is impracticable. On Nov. 19 patient voids again eight ounces of clear amber urine, and catheterization brings away, as on the former occasion, twelve ounces of creamy urine. This is supposed to be the residuum in the bladder proper which from vesicle inertia has accumulated and broken down.

The bladder is distended with boric acid and is found to hold twenty-four ounces of fluid. The fundus of the bladder is also noticed to be to the left of the median line, round and rather small, smaller than would account for the capacity above mentioned. Rectal examination with the full distension of the blad-

der reveals nothing. Cystoscopy is again tried but not carried out. No X-ray is taken.

On Jan. 27 a suprapubic cystostomy was performed under nitrous oxide and oxygen anesthesia, which shows there to be two cavities connected to the right superiorly by a well-defined constriction which would admit about three fingers. The bladder is drained by an urethral catheter, a suprapubic tube being put in the opening of the diverticulum and the patient returned to bed.

Feb. 10 a median line incision under ether from the symphysis to an inch below the umbilicus, muscles retracted outward and a dissection of the diverticulum started, which is found to fit into the pelvis proper on the right side. Starting well up superiorly the tumor is molded to the side of the bladder which it overhangs and projecting downwards as far as the prostate and the rectum, it neatly fills in the outlines of the pelvis, by which it is somewhat flattened out, as it strips around the side of the bladder, dislodging and shoving this organ to the left. The ureter is dilated to about the size of the little finger, crosses over the posterior summit of the diverticulum and dips down again into its proper opening. The tumor is dissected loose, several arteries requiring ligation, a pair of large forceps catches it through the opening, it is now invaginated, tied off at the foramen, excised, and the free edges of the bladder sewed to the skin. Tubes are inserted into the bladder proper and into the space formerly occupied by the tumor, and the patient returned to bed.

This diverticulum proved to be considerably larger than the bladder, five inches long, about four inches wide, and three inches deep, symmetrical, ovoidal in shape, and plentifully supplied here and there with irregularly developed muscle bands. Photograph is herewith given.

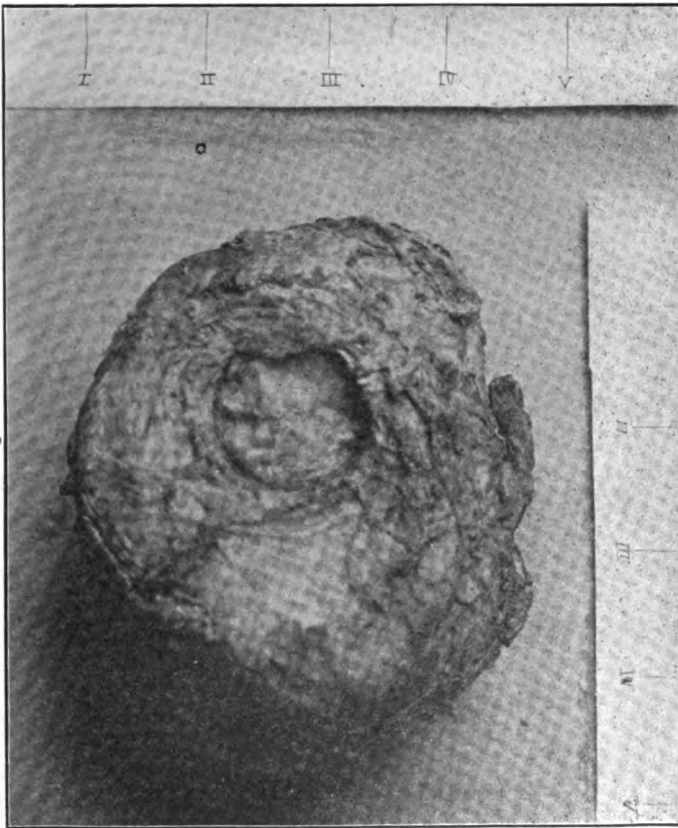
March 15, patient is up in rolling chair, the wound healing nicely, there has been no complication following the incision of the tumor and he seems to be going on to a good recovery.

Anatomy:—It is about the base and flanks of the urinary bladder that the muscular bundles are peculiarly well organized. It is in this region also that the arterial supply to the organ proper gains its entrance. The significance of these two factors are evident. In later life with the irregularly hypertrophic muscle bundles scattered mostly about the floor of the bladder, standing out boldly, depressions and valleys are formed here

and there, which, dependent upon the degree of the original cause, are dilated and ballooned, until cavities are formed which, connecting with the bladder, may hold any quantity of urine. Verhoogen ¹¹⁵ reports a case of diverticulum holding considerable over a litre.

Etiology:—Diverticula may be congenital or acquired. Pagenstecher ⁸² offers the following as the origin of the congenital type:

1. There exists an anterior-posterior transverse partition or strangulation of the bladder. The strangulation may be



above or below the ureters. He describes this form as the congenital hourglass form of the bladder. Its origin is about the time of the fourth month (embryo of 17 mm). Clinical symptoms occur only with higher degree of stenosis.

2. There exists also a really cleared or doubled bladder.

The separation reaches at least to the apex of the trigonum. There, both either open into one urethra, particularly in the male, or the urethra is also doubled, chiefly in female patients. Frequently other malformations, as uterus bicornis and duplex, formation of cloaca in the colon, atresia, umbilical hernia, duplicature of the colon, may co-exist. This explains the diminished vitality of those individuals. We need not necessarily assume that there exists an early duplicature of the embryonic rudiment or the clearing of a single embryo, but only a degree of the primitive embryonic rectum extended far upward, and variously splitting, or a division of the embryonic material from which the latter form. The bladder is divided inside by a partition. This consists of two layers, each of which shows the structure of a complete bladder wall. The ureters either go only into the principal ventricle connected with the urethra, or each corresponds to one ventricle. The accessory ventricles are usually more predominant on the left side.

The *acquired* pouches are more readily reasoned out. Harrison⁴³ classified the acquired etiology as 1, intra-uterine; 2, obstacles to urination (which is the most frequent); 3, traumatic, and cites here a case of a man who developed a diverticula by being thrown from a horse.

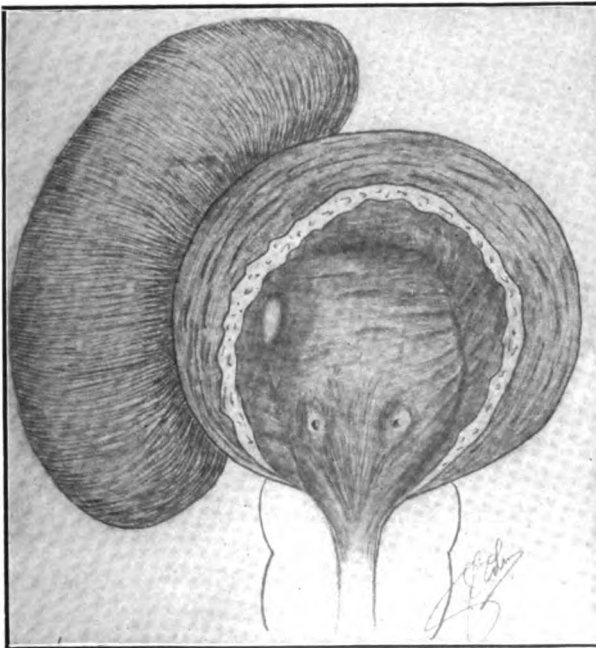
Sugimura¹⁰⁶ attaches particular significance to the interstitial connective tissue displacing the muscular bundles of the vessels of the bladder. The wall of the congenital diverticulum consists of the bladder wall proper with all its true muscular coats, whereas the acquired form possesses the mucous membrane only. These acquired diverticula are usually located about the floor of the bladder, and orifices of the ureters. Cholzoff¹⁵ is of the same opinion, and says that in congenital diverticula it is not uncommon to see one of the ureters emptying into this pouch. This does not obtain as a rule in the acquired. When it does, the ureteral opening is near the rim, and the pouch is well beyond. From a review of the foregoing, then we would suppose that these well defined contractile muscular pouches are congenital, and that the mucous extrusions are acquired, developed in later life, contingent upon urinary obstruction.

Pathology:—Langer⁵⁹ considers the hypertrophy of the muscular bundles as a result of the presence of the diverticulum, and states that the bladder in forcing some of the contents over into the diverticulum at each act of urination is doing a large

amount of dead work. Much the same as is seen in cardiac hypertrophy of mitral insufficiency.

Rokitansky⁹³ on the contrary, says that diverticula are found only in bladders with hypertrophied muscle wall, and that it is between these bundles that the mucous membrane is shoved, so forming the rounded protrusions. According to this same authority, the opening is at first slit-like, but later becomes rounded, thickened and assumes a more symmetrical and sphincter-like form.

Interstitial changes of the muscular bundles, irregular replacement fibrosis, give an unevenness of resistance which would seem to invite sacculation; again, arterio-sclerotic changes in



these vesical arteries form inelastic cords, about which and between which the mucous membrane may be readily bulged. Acquired diverticula therefore are found more frequently about the base of the bladder than elsewhere and but for the unyielding trigonal floor and structures inferiorly would doubtless be noticed in even still larger numbers.

Stone implantations in pouches on the vesical wall must sooner or later produce pockets which become diverticula of greater or lesser size. This "stone pouch" results from pros-

tatic or urethral interference and is not to be classified with those diverticula not contingent upon "weight pressure."

It would seem that congenital diverticula, by reason of their appropriate coats undergoing the same periodic physiologic contractions and possessing the same sensitization as the bladder proper, would be subject to more pathological invasions than is the mucous balloon of the acquired type. This appears to be substantiated by investigation, with the possible exception of stone being found more frequently in the latter. For evident reasons irritation of the diverticulum may be present. The size of the sac seems to be an important and deciding factor.

Englisch²⁶ says if the point of connection with the bladder is high and the orifice yet small, retention of the secretion may easily occur. The most favorable conditions are offered by the bursae on the posterior bladder wall. Whilst all inflammatory processes of the bladder and urethra may be the cause for pathologic changes of the diverticula, such may take place without involving the bladder.

Englisch²⁶ differentiates four different forms of the disease: 1. Chronic form with accumulation of mucus or mucous pus. 2. The acute purulent inflammation. 3. The gangrenous ulcerating form. 4. Rupture into the peritoneum.

Czerny¹⁸ reports a case of a stricture giving rise to a diverticulum which underwent gangrene.

Pilz⁸⁷ lays particular stress upon the purulent infiltration of the surrounding tissues from diverticular degeneration. The essential significance of this is the involvement of the ureter with consequent renal degeneration, as in a case reported by Langer.⁵⁹

Ulceration and inflammation of the sac bear strongly upon the mortality.

Diagnosis:—Is subjective and objective. The patient complains in the uninfected cases of indefinite and obscure difficulty in voiding, and notices that when urinating in less amount the urine is clear and unirritating, but that the act does not seem to fully satisfy the bladder, and repeated attempts may be again made immediately after the first act. If on one of these subsequent attempts to pass water the urine is cloudy, milky or offensive, the desire is no longer to urinate, but the patient's attention is attracted to the fact that there is a remarkable difference in the appearance of the urine.

In an infected diverticulitis or in those diverticula which have been the seat of a prolonged inflammation characterized by

a peridiverticulitis, there is considerable discomfort or even marked pain on attempts to empty the bladder. This pain is much accentuated at all times in muscular diverticula, and in those instances of mucous diverticula on the occasions when they evacuate themselves. A close investigation of these points in cases of suspected pouches, might assist in venturing an idea of the character of the extrusion. Again muscular diverticula should empty themselves more frequently than the mucous types. Stone should not be so frequently seen in the muscular as in the mucous pouches, but the significant history of vesical stone applies to both only in that there is no abrupting of the stream, nor the blood noticed except on evacuation of the pocket.

Pielicke⁸⁵ calls attention to intestinal upsets as an obscure symptom of diverticula claiming that it is due to a reflex condition of inhibition of the normal peristaltic wave of the intestines.

Perthes⁸⁴ cites a case in whom the diagnosis of renal hemorrhage had been made.

Rothschild⁹⁶ calls attention to the use of the cystoscope and says that micturition may be fractionary, and that with catarrh the first urine coming from the bladder will be clear, the second portion from the diverticulum will be cloudy, but in our case the urine on every occasion at home was clear, the diverticulum not evacuating itself, and only on two occasions of catheterization was the diverticular orifice gained so that the broken down contents were drained off.

Harrison⁴³ calls attention to the movement of the catheter as a guide for diagnosis.

Demoulin says that there is no distress in micturition or strangury in cases where the diverticulum is connected with the bladder by a thin pedicle. Strangury is only found where the connection of diverticulum and bladder is wide.

Wulff¹²¹ gives the history of a 34-year-old man where the differential diagnosis between prevesical abscess, tumor of the bladder or large and temporarily completely closed diverticulum, was left an open question. Operation proved it to be a large diverticulum.

Cholzoff¹⁵ declares the clinical picture of the non-complicated diverticula is very indistinct; with large diverticula a tumor can be palpated, micturition may be difficult or occur in two phases, sometimes frequent strangury, complete or partial retention of urine. In small uncomplicated diverticula trouble in micturition may be absent. When complicated with infection,

symptoms of chronic or acute cystitis are predominant. Hydro-nephrosis, pyelonephrosis, pyonephrosis are frequent.

Location of Diverticula:—*Congenital* are usually lateral or at the apex (an urachus deficiency?), most rarely are found anteriorly.

Acquired are found about the base and the lower lateral flanks, most exceptionally anteriorly, because of the normal bony resistance offered there. Moran⁷⁴ reports a case of a man 70 years old with a diverticulum containing a stone on the anterior bladder wall; in 195 collected cases it is the only instance of a pouch in this location. It may be mentioned here that diverticula are not infrequently seen to give out from their periphery in turn small pockets or bulgings so that the surface is not smooth and uniform, but irregular and like a bunch of grapes.

Stone in diverticula may be single or multiple, and would form more easily here than in the bladder, particularly in those instances of acquired pouches whose hiatus is high up so that frequent evacuations are not carried out. Moran⁷⁴ reports a case of a 70 years old man in whom a large phosphatic stone completely filled an anterior diverticulum.

These stones at times become densely adherent to the bladder mucosa. Nicolich⁷⁸ reports a case of a man 72 years old, with enlarged prostate, in whom autopsy showed a diverticula stone behind the prostate as large as a hen's egg, reaching for $\frac{1}{3}$ of its size into the bladder, to which it was inseparably attached. Harrison⁴³ reports a patient 103 years old who, otherwise in excellent health, died as a result of urinary decomposition in a diverticulum. A piece of calculus shaped like an arrow head caused the death of the patient after an otherwise successful lithotrity.

Cancer and Papilloma of Diverticula: Both of these tumors have been found in bladder pockets. Rokitansky⁹³ calls attention to the pathological conditions of mural pus foci protected by fat masses and not rarely branching in different direction in forms of sinuses into the bladder wall, and furthermore, that in instances of two contingent diverticula walls, pressure necrosis may establish an opening between them.

Hernia Diverticula: That the hydrostatic pressure in the bladder is at times very great, causing protrusions of the wall into any available space, is instanced by diverticula being found on frequent occasions in hernial sacs. Santini⁹⁸ observes that although this condition is rare, it is rarer in the slanting outer

hernia. Tailhefer¹⁰⁹ reports a case of incarceration of a diverticulum of the bladder in the femoral ring, in which there were no indications of a hernial sac.

Number of Diverticula: Although usually single, the capacity in these instances being the same as or even greater than that of the bladder, diverticula may be of any number, the quantity being reckoned only by how deep one regards an intramuscular depression to give it the dignity of a specific name. Englisch²⁸ reports a case with 40 diverticula, 28 of which contained stone.

Detweiler²⁰ reports a case in autopsy which showed 25-30 well defined sacs, the bladder being divided into two almost equal compartments by a contraction in its center, and so resembling an hourglass; the opening between these two cavities admitting only the tip of the finger. The author does not know whether these pouches were formed by contractions of the inner surface due to inflammation assisted by the constant pressure of the urine, or that the progressive muscular hypertrophy shortened these bands, encroaching on the cavity of the bladder, leaving the mucous membrane beyond.

A reasonable criticism of the foregoing considerations would lead us to think that congenital diverticula are single, or at the most double, and would appear earlier in life as a pathological expression than do the acquired diverticula.

Rothschild⁹⁶ says that the opening of the congenital diverticula into the bladder is usually wide, irregular, round, or oval, the mucous membrane is smooth, has no trabecules, and becomes easily continuous with the mucous membrane of the bladder.

Mortality:—Englich²⁹ says that the relation between diverticulum of the bladder and perforated peritonitis is remarkable, that inflammation of this sac to the point of perforation, is rarer in the case of stones in the diverticula, than where there are no stones. With stones in the diverticulum he reports 12 deaths from peritonitis, against 250 deaths with 9 perforations due to inflammation of the diverticulum. Death due to inflammation of the sac was caused partly by progressive affection of the various organs, more especially the kidneys (16 cases of uremia), partly by progressive marasmus (2 cases), peritonitis (11 cases) without perforation (5 cases), with perforation (9 cases), by sepsis (5 cases), by sepsis originating in the diverticulum (6 cases). In 39 cases of diverticulum of the bladder there were 34 deaths and 5 recoveries.

Cholzoff ¹⁵ states that diverticula complicated with infection are most dangerous, giving a mortality of 83%

Treatment:—Since the condition is a sac which cannot be absorbed by local application or internal medication, and since its unhealthy presence compromises the functional integrity of the bladder, and because diverticula empty themselves at irregular intervals or not at all, and further, since the ureteral mouth not infrequently empties into this pouch, which ultimately spells pyelitis, pyonephrosis and constitutional invasion, the handling of these cases can be only along well defined and positive surgical lines, which are again to be reckoned with as 1, clean; and 2, the infected.

From an anatomical standpoint, and ease of access, the writer selects the suprapubic extraperitoneal approach to be the one of choice in all cases except possibly in those small diverticula springing from the floor of the bladder and pushing forward under the prostate, or those dipping posteriorly along the anterior wall of the rectum. Here the perineal or sacral route may be rightly indicated.

Englisch ²⁹ in considering the radical treatment of bladder diverticula states that in certain cases, partial resection of the pubic bone is justifiable. This appears indeed to be a most radical means of approach.

According to Cholzoff ¹⁵ the anterior and lateral diverticula should be approached through the linea alba, the posterior and inferior pouches by the perineal route, or after resection of the sacrum.

Pagenstecher ⁸¹ recommends only the sacral route. The route of attack being decided upon, and the bladder and diverticulum filled with fluid, the operation is conducted at all times extraperitoneally. The bladder along with the tumor are now dissected freely loose from the surrounding structures, a vertical incision into the bladder evacuates the fluid, the diverticulum is invaginated through the hiatus, clamped or cut off about the margin of the hole and the free edges brought together. Wagner ¹¹⁶ suggests the use of a flap from the peritoneal layer of the diverticulum to cover the wound in the bladder. In another case reported by Wagner ¹¹⁶ the diverticulum was invaginated into the bladder-cavity but not amputated, the patient ultimately succumbing to a pyelonephritis.

Diverticula found in hernial sacs must be dealt with at the time of the herniotomy.

In those instances of multiple pouches as in the case reported by Englisch ²⁹ operation would appear to be unsatisfactory.

The *infected* diverticula (as in our case) should be drained through a suprapubic fistula until clean before being removed. A few weeks, at the most, should suffice for this. Transplantation of the ureter may be necessary and is best affected into the hiatus. The after treatment calls for no unusual course.

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SHOULD THE TREATMENT OF SYPHILIS BE DIRECTED ACCORDING TO THE WASSERMANN REACTION?

By PROFESSOR CH. AUDRY, of Toulouse.

I

At the present time two points seem to be pretty well established:

1. The Wassermann reaction is not specific for syphilis; diseases other than syphilis may give it; syphilitics, even in the presence of manifest symptoms, may not give it.

2. Nevertheless, in practice, the above facts do not diminish its diagnostic value, because even if a negative reaction does not teach us much, a positive reaction practically assures us of the existence of syphilis, whether manifest or latent, somewhere in the body.

II

This much being granted, it remains for us to consider whether the Wassermann reaction really furnishes a fundamental guide for determining the treatment of syphilis. That this is so is energetically claimed by various writers among whom are some who are not very reliable. When, however, one sees A. Neisser make such a claim and give it the whole weight of his support it really becomes necessary to examine such a dictum with great care, for it would practically bring about a revolution in our daily practice.

It may very well be that the future will confirm the absolute accuracy of such a claim, but I wish to say that in the present state of our knowledge such is not the case. Much more investigation is desirable in this matter, and it seems not only premature but dangerous to accept without criticism a new criterion which seeks nothing less than the replacement of clinical observation by the somewhat too commercial employment of a laboratory procedure.

III

The first question which we have to answer is: Does the absence of a Wassermann reaction mean that we should dispense with specific treatment?

There are two cases to consider:

(1) That of a syphilitic with full clinical manifestations of the disease. In the first place, we must realize that although

such a condition is exceptional it is common enough to be well recognized, for syphilis is a disease of so varied a nature that exceptions to the rule occur rather often. A good number of cases have already been described where a skin recurrence has taken place without a recurrence of a positive reaction. I myself have seen at least two cases in persons suffering from recently acquired syphilis and treated with arseno-benzol. It stands to reason that we do not have to consider such a situation at any great length. Every one will agree that in such a case the absence of a positive reaction can in no way alter our determination to go on with the treatment.

(2) That of a patient who has no obvious clinical manifestations and whose sero-reaction is negative. Should such a man be treated? This leads us back, in effect, to an old problem, viz., should the treatment of syphilis be "opportunistic" or should it be "chronic and intermittent?" Those who, like ourselves, admit that the treatment of syphilis should be continued beyond the period of external manifestations will not hesitate to conclude that the absence of a sero-reaction will exercise no influence on their line of conduct.

I do not know whether the future will restore the "opportunistic" method of treatment, but for my part I will always believe that the future course of syphilis is much more favorable in those who have undergone prolonged, systematic, and regular treatment, whether there are any manifestations or not, than it can be in patients who are otherwise treated. In short, it seems to me that one must admit that the absence of a sero-reaction should in no way influence the treatment of syphilitics.

IV

I do not imagine that the preceding statements will provoke much objection. It remains for us now to consider to what extent we can in practice utilize a positive sero-reaction.

First, let us take up the case of a patient who presents a chancre but who shows no skin manifestations. Should a positive reaction influence our procedure? In this case the answer is unanimous. The sero-reaction is really of no account whatever. At the very most, the establishment of a positive sero-reaction may be of some interest from the prognostic point of view, for it is admitted that we have a greater chance of aborting syphilis by proper treatment if the sero-reaction is still negative. Still the reaction is of no account as far as the adminis-

tration of treatment is concerned. Personally I believe that, except for research purposes, it is useless to bother one's self about the reaction at this stage.

V

Let us next take up the case of a syphilitic with full manifestations of the disease and with a positive sero-reaction. At this stage and in this condition the investigation of the sero-reaction has no interest. It is our first duty to continue treatment until the complete and permanent disappearance of all clinical manifestations.

VI

Third, let us consider the case of a recent latent syphilis in which all clinical symptoms are suppressed, either spontaneously or under the influence of treatment. I consider it self-evident that in such a case, no matter what the exact circumstances, it is essential to treat the patient. In this connection, the establishment of a positive sero-reaction teaches us nothing; still we must consider whether it would not be wise to determine the intensity of the treatment according to the sero-reaction.

At this stage, it is the part of wisdom to answer in the affirmative. To-day the Wassermann reaction has the significance of a syphilitic symptom; it should therefore be treated as such. It is not uncommon, however, for the reaction to disappear only after two or three months of treatment, and, on the other hand, it may reappear very easily and very insidiously. Thus a positive Wassermann reaction obtained two or three months after the last intensive treatment (mercury injections, arseno-benzol) is indeed an indication of such intensive treatment.

In practice it is wise to take the Wassermann reaction at least twice: once at the end of the first, and again at the end of the second year of the disease. If it is positive, an intensive cure should be carried out; if not, such treatment is unnecessary. As a matter of fact, experience teaches that, in this stage, treatment exercises a regulatory influence on the sero-reaction and that it almost always succeeds in making the latter disappear.

I would add that the ordinary case of syphilis, with regular treatment, almost always gives negative reactions, and this without its being in the least necessary to resort to intensive cures except during the presence of active symptoms.

I have determined the Wassermann reaction in a large number of my older patients whom I had formerly treated exclusively with pills and with mercurial inunctions. Only one case gave a positive reaction.

VII

In the fourth place, let us take up the case of an old, latent syphilis. Should we take a Wassermann? To this I reply at once, yes. What should we do if the result is negative? The answer is, Don't worry at all about it and tell the patient not to forget the little intermittent treatments with iodine and mercury. What if the result is positive? In such a case it is obviously wise to push a rapid cure, but we must bear in mind that in this stage the most intensive treatment has often no influence whatever on the reaction.

Scholtz, who uses arseno-benzol in large doses, has had 40 per cent. failures, while Muller claims to have seen only 20 per cent. under the use of inunctions, potassium iodide, sulfur baths, and massage. All authors, however, are obliged to confess that in a great many cases the Wassermann reaction resists all kinds of treatment, and I myself have been no more fortunate than the others. Thus in an old case in the latent stage a positive Wassermann reaction probably indicates intensive treatment, but it is vain to try to continue the latter until the disappearance of the sero-reaction, for the latter may be resistant to all treatment.

The future alone will teach us what becomes of those patients in whom a syphilis, silent, it may be, for twenty-five or thirty years, awakes again owing to some change, the significance of which remains unknown. In any case, however, it would be futile and perhaps dangerous to attempt a complete constitutional "restitutio ad integrum" in all cases. In this respect, as yet, the Wassermann reaction cannot be a safe guide.

VIII

To sum up, the determination of the Wassermann reaction has practical value only in the latent stages of the disease. A negative reaction is of no importance. A positive reaction may serve as an indication for intensive treatment, there being no other means to indicate its applicability. Still it is impossible to regard the test as a "director" of treatment: it is often necessary to treat when the reaction is absent, at least in the beginning of the disease; it is often necessary to stop treating when it is present, especially when one meets with the disease many years after the initial lesion.

SEXUAL IMPOTENCY IN THE MALE

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[Continued from the January issue.]

CHAPTER VIII—ALTERATIONS OF THE ORGASM

AS we have already stated in a previous chapter, the orgasm is to be considered as an essential part of the normal act of cohabitation, that feeling of the highest voluptuousness which comes at the moment of passage of the seminal fluid into the prostatic urethra and gains force like an avalanche as ejaculation begins. "It attains its climax at the moment of ejaculation, and disappears quickly after it." (Krafft-Ebing.)

After the close of the sexual act, when the erection and the voluptuous feeling are over, the sexual desire ceases, and a condition of temporary, physiologic impotence occurs, which is characterized by a comfortably tired and restful feeling, a psychic reaction after the sexual excitement.

The orgasmic sensation is a visceral feeling, and is apparently produced by the sympathetic plexus; it corresponds in a physiologic sense to other "sympathetic feelings" (such as that of nausea, of tickling, etc.).

The orgasm originates at that moment when the secretions coming from the genital glands reach the posterior urethra, a function, which, as we have already said, proceeds from a sympathetic nerve-center; and this fact is evidence that the site of the central station for the discharge of orgasmic feelings is to be sought in this sympathetic center.

This voluptuous feeling may be pathologically increased, it may be pathologically weakened, or finally it may be wholly lacking. "The degree of psychic and motor excitement accompanying the sexual act depends on the strength of the voluptuous feelings. Under pathologic conditions the latter may be so increased that the movements of coitus become quite involuntary and convulsive, and even end in general convulsions." (von Krafft-Ebing.)

The diminution of the orgasm and its complete disappearance may be a local sign of sexual neurasthenia.

Extremely sensual persons, whose erectile power has usually already suffered injury, complain to us not rarely that they can indeed perform the sexual act quite regularly, but that they have become a stranger to all feelings of satisfaction or voluptuousness. They attempt by means of repeated intercourse to participate finally in this feeling of voluptuousness and come in this way to commit sexual excesses. Instead of bettering the evil they only injure their sexual power, still more, and remain ever unsatisfied after repeated coitus.

The absence of the orgasm is often an early symptom of beginning nervous and irritable impotence. This follows typically the following course of exacerbation:

The erectile faculty is at first unimpaired; the connecting paths with the ejaculatory center are more or less disturbed, and precipitate ejaculations occur; the sensual feelings and the satisfaction diminish.

Later the erections become weaker, and the orgasm soon fails entirely. Pathologic fatigue and unpleasant feelings of various kinds accompanied by pains in the urethra and prostate take the place of the comfortable feelings of lassitude after coitus and the orgasm.

The final link in this chain, which the incorrigible profligates—onanists and sexual debauchees—reach, if they do not adopt in time a rational sexual hygiene, is the sad state of paralytic impotence. Sexual desire of a normal form is gone, expedients of a perverted, often disgusting kind are the only stimuli of the sexual sphere, erection appears, at the most, mechanically in the morning, ejaculation for such patients is an unpleasant, weakening phenomenon, and in place of voluptuous feelings come the most painful sensations.

But simple, inhibitory psychic processes may also prevent the appearance of the orgasm. A patient of ours, who after breaking off an old amour had absolutely no sexual desire for a long time, and hence lived continent, accustomed himself finally again to regular cohabitation; yet he enjoyed no orgasm or satisfaction in any of these acts, perhaps because of his remembrance of his former happy times. He describes this

condition as painful, depressing, and enervating, although his cohabitory faculty is otherwise quite intact.

Many tabetics also complain of failing orgasm simultaneously with diminishing libido.

If by treating the different forms of male impotence in the preceding chapters according to a physiologic scheme I have invited the criticism that I have considered the often extremely complicated clinical pictures too schematically, I will at once admit that there are cases, the classification of which in one of the mentioned forms of impotence will meet with great difficulty. As a rule, however, we have succeeded with painstaking examination of the patient and careful consideration of the history, when we had to do with trustworthy and credible patients, in assigning them naturally to one of the above-mentioned groups. It should at the same time of course not be denied that the severest, most advanced cases of male impotence were extremely difficult to analyze in their pathogenesis, especially when severe disorders such as marked sexual neurasthenia complicated the clinical picture.

In such cases we often find combinations of derangements, relating to the individual acts of the sexual life—libido, erection, ejaculation, orgasm—and to their mutual connections. The pathological disturbance expresses itself not only in the central apparatus, which provides regulation of these functions, but especially also in the connecting paths between them.

Exact analysis of the cases, that is investigation of the origin of each separate disorder is, however, all the more important because only in this way can we give the patient the proper advice and the correct local treatment.

If for example we take only the symptom of ejaculatio præcox, quite different kinds of treatment come in question in its different forms.

It seemed to us for this reason advantageous to choose the physiologic relations as the basis of our classification of the different forms of impotence and to treat them according to their physiologic connection.

CHAPTER IX—PRIAPISM—CLASSIFICATION OF THE SUBJECT

WE understand by priapism a stiffening or turgescence of the male organ, which lasts longer than a normal erection, and instead of producing voluptuous feelings, is often accompanied by most unpleasant sensations or pain.

When priapism is defined by authors as a prolonged erection, occurring independent of any sexual idea, the conception of priapism is not by any means complete; those cases also deserve this title, in which there is an erection of long duration with persisting sexual desire or even after sexual satisfaction.

The word "satyriasis" is often mistakenly used as synonymous with priapism; but this is incorrect, for satyriasis means a morbidly increased sexual desire. Priapism may occur, however, in conjunction with satyriasis. We found in an old reference on this subject the term "rhopalism" used synonymously with priapism (Dunn).

Normal erection may be transformed to protracted priapism, when the mechanicism of the latter is imitated by pathologic processes (pseudopriapism), or when the nervous stimulus discharging the normal erection produces a stiffening of long duration, which is followed by secondary pathologic changes in the erectile tissues.

A few words concerning the mechanism of erection and the action of nervous influences upon it may be here in order. We can explain the stiffening of the corpora cavernosa and spongiosum by a tense filling of their interstitial spaces with blood. There must be a much increased inflow of blood through the arteria profunda of the penis and a decided stopping of the outflow through the venæ profundæ and dorsalis.

The influence of the nervous system upon erection makes itself felt from three points: (1) from the brain; (2) from the spinal cord, and (3) from the periphery by means of the nervi erigentes (Eckhard).

Erection can be brought about directly by merely cerebral activity, by erotic imaginations or visual perceptions, and a peripherally excited erection can be prevented by inhibiting ideas.

The stimulus to erection coming from the spinal cord expresses itself in pathology and in pathological physiology in

the erections that occur after injuries and concussions and after electric excitations of the erection-center situated in the lumbar cord.

The irritation of the *nervi erigentes* leads to erection by the reflex path in this way, that the stimulation arising from friction of the glans, from inflammatory conditions of the penis and the urethra, and indeed from the mere filling of the bladder in sleep (morning erection) is conducted by the peripheral nerves to the spinal cord, and the erection proceeds thence in the reflex manner.

It is not yet certainly determined, whether the individual erectile tissues have their own peripheral nerves, that is, whether the corpora cavernosa of the penis can be erected by peripheral stimulation independently of the corpus spongiosum. Some forms of physiologic erection (the morning erection caused by a full bladder) as well as some forms of priapism show the surprising peculiarity, that the corpora cavernosa are especially erected while the corpus spongiosum remains unaffected.

This peculiarity might be explained in either of two ways: firstly, that the innervation, which causes erection of the corpora cavernosa is separate from that of the corpus spongiosum. Leukemic priapism, for example, in which almost always only the corpora cavernosa are erected, could be explained under these circumstances by pressure of the swollen glands on the erecting nerves of the corpora cavernosa.

We may just as well suppose that the spinal centers for the erection of the corpora cavernosa and the corpus spongiosum are separate, as that different nerve-paths for these functions proceed from a common center, so that they can be separately innervated. It could so happen in some cases of priapism, that all the erectile tissues were erected and in others again only the corpora cavernosa.

The second and far more probable explanation for the isolated erection of the corpora cavernosa is to be found in the peculiar stoppage of the outflow of venous blood. According to Henle's anatomical investigations the essential reason for erection is a tonic cramp of the deep transversus perinei muscle (*musculus transversus perinei profundus*).

The deep veins of the penis, which derive the blood from the corpora cavernosa, pierce this muscle. Now if the outflow of blood through these veins is hindered or cut off by the contraction of this muscle, an unequal filling of the corpus cavernosum and the corpus spongiosum may be easily explained, since the outflow of blood from the latter is not interfered with, inasmuch as its blood is drawn off through the dorsal vein of the penis.

THE DIFFERENT CAUSES OF ERECTION ALSO PRODUCE PATHOGENICALLY DIFFERENT FORMS OF PRIAPISM.

The simplest form of mechanical erection may be demonstrated on the cadaver by injecting the dorsal artery of the penis, when one obtains a strong erection of the organ.

We see analogous conditions in that form of priapism, which is due to local affections of the penis, when its erectile tissues are tensely filled by vascular thromboses, by suppuration, or by stiff cancerous infiltration.

Priapism resulting from disturbances of the central nervous system represent a second group. Both anatomical lesions and functional disorders of the nerve-centers can produce priapism.

We also encounter priapism in various affections of the whole organism, in intoxications, infectious diseases and anomalies of the general constitution. It is not yet certain in this group, whether the priapism is due to local influences or to affections of the nervous center.

From another point of view priapism may be classified into two forms, viz., one which begins acutely and then persists, and another, the intermittent, or chronic form.

Our classification runs accordingly as follows:

I. Priapism from local causes in the erectile tissues:

- (a) of an inflammatory nature,
- (b) of a neoplastic nature,
- (c) of a traumatic nature,
- (d) resulting from circulatory disorders.

II. Priapism from *nervous* causes:

- (a) in organic diseases,
- (b) in functional diseases of the brain and spinal cord.

III. Priapism in constitutional diseases:

- (a) intoxications,
- (b) infectious diseases,
- (c) constitutional diseases and diseases of the blood.

CHAPTER X—PRIAPISM FROM LOCAL CAUSES IN THE ERECTILE
TISSUES

LOCAL causes, which produce a mechanical erection of the penis, may first of all be *inflammatory* in nature. If in the course of a gonorrhea deep-seated inflammation occurs, periurethritis and infiltration of the corpus spongiosum, or in other cases suppuration of the corpora cavernosa, an extremely painful priapism results, which is based merely on a mechanical filling of the erectile tissues with pus. Such inflammations, called *cavernitis*, can also occur in a chronic form (the chronic plastic induration of the erectile bodies) and then result in the same pathologic changes.

Suppurations of the corpora cavernosa may also result from the infection of a hematoma or a thrombosis of these tissues. We may here cite a famous case of Rokitansky's, in which the priapism persisted even after the death of the patient and was due to the suppuration of a leukemic thrombosis of the corpora cavernosa and spongiosum.

In a case described by Demarquay as *penitis*, which was carefully investigated by Nepveu, all the erectile tissues were interspersed with suppurative foci. He found in the microscopic investigation destruction of the central trabeculæ of the corpora cavernosa, suppurative infiltration of the marginal trabeculæ and the interstitial spaces; the arteries, muscle-fibers and elastic fibers were preserved. The cavernitis had arisen in this case after incision of an abscess of Cowper's glands. The skin of the penis became red, tense, and painful in the lower part, and micturition was difficult and painful. The swelling of the penis increased and priapism resulted. Chills occurred; the incision of an abscess in the penis availed nothing against the manifest pyemia, which soon had a fatal ending. (Cited from Kaufmann.)

The origin of inflammatory priapism in *ulcerations* of the glands and prepuce deserves mention among the causes of a phlegmonous cavernitis.

In a case published by Neumann the suppurative cavernitis was due to a phagedenic ulcer of the prepuce.

New growths in the corpora cavernosa can cause priapism in the same way that suppurative infiltrations do.

A second case described by Neumann is to be regarded on the one hand as cavernitis, on the other as a neoplastic infiltration of the erectile tissues. The post-mortem examination of a blacksmith 50 years old, who had suffered from priapism thirty-one days up to the time of his death, showed an edematous swelling and ichorous inflammation in the cancerous erectile tissues; this had come from a carcinoma of the bladder-wall, which had perforated into the free abdominal cavity.

Such cases of neoplastic infiltration of the corpora cavernosa were also described by M. Maurer, whose patients came with ulcerated inguinal glands and priapism. The erectile tissues were interspersed with metastatic sarcomatous nodules. C. O. Weber also found in a case of priapism numerous tumor nodules in the cavernous tissue, which were metastases of a sarcoma of the testis.

A certain degree of stiffening of the penis also occurs in the case of extended *gummata* of the erectile tissues.

TRAUMATIC PRIAPISM

Priapism may arise as a result of injuries to the erectile tissues through the formation of great hematmata in the corpora cavernosa.

Johnson Smith describes such a case, which followed a fall upon the perineum. In one case of Vorster's the erection appeared after a kick in the penis by a horse, and an extended extravasation of blood was removed by incision of the corpora cavernosa.

Priapism resulted from a gunshot injury in a case reported by Demarquay.

We must finally include among the priapisms of local origin those due to *circulatory disorders* in the erectile tissues. The so-called *leukemic priapism* probably belongs first of all in this category. It is produced by a thrombosis of the corpora cavernosa and spongiosum. However, we will consider this group of cases later in detail under priapism from general diseases.

Thrombosis of the corpora cavernosa has been noticed after sexual excesses and traumata, which were suffered by the erected penis. Priapism has been repeatedly observed in difficult attempts at coitus as well as in the injury called "fracture of the penis," and the basis of it was assumed to be thrombosis of the erectile tissues.

Mackie explained the permanent erection, which he observed in a man 70 years old, by a rupture of the corpora cavernosa, because the painful priapism followed a forced erection and because an incision of the erectile bodies revealed large amounts of old, extravasated blood. The rupture of the vessels was favored in the old gentleman by his arteriosclerosis.

In Birkett's case the priapism originated after sexual intercourse, and here also an incision into the corpora cavernosa revealed thick, black blood-clots. The origin was similar in the cases reported by Callaway, Tripe, Crago, and Mori.

Goebel summarizes the last mentioned cases as well as those of Birkett and Hargis and one of his own under the designation "idiopathic priapism," a form, "in which a cause cannot at once be assigned."

Goebel admits, however, that the origin in some of these cases is to be referred to an injury, a hemorrhage or a thrombosis. In his own case No. 1 he supposes "an injury to a blood-vessel of the penis in coitus; and the hemorrhage into one corpus cavernosum resulting therefrom prevents the return flow of blood, produces stasis and eventually coagulation of the blood."

It seems to me somewhat forced to denote this case and the similar ones of Birkett and Hargis as idiopathic, and I consider it much less confusing, if we regard these cases as traumatic or as priapism resulting from circulatory disturbances in the erectile tissues (thrombosis).

After these considerations there remain of the ten cases of idiopathic priapism collected by Goebel only the six cases of Windish, Smith, Hird, Walker, Weber, and Mainzer, while we class those of Birkett, Mackie, Hargis, and Goebel as traumatic.

Von Windish's clinical history is so brief and inaccurate, especially as regards etiology, that one can hardly draw far-reaching conclusions concerning the pathogenesis. The same

holds true for the cases of Smith and Hird, of which only very brief notes exist. Weber's patient, who suffered from priapism during an attack of gout, had a thrombosis of the corpora cavernosa, in the author's opinion.

Walker's case may also possibly be regarded as traumatic priapism with hemorrhage, since before relaxation of the penis one could feel a narrow hard ring about the corpora cavernosa two inches below the glands as a cicatricial induration.

We classify Mainzer's case, which we shall again consider later, in the group of nervous, functional priapisms.

And so of all the cases, which Goebel denoted as idiopathic, there remains hardly one, in which a cause for the priapism could not be discovered. Hence in our opinion the creation of the clinical term "idiopathic priapism" is inadmissible.

H. Lohnstein has recently reported in an excellent study of priapism a case, which he presents as idiopathic priapism.

It concerns a syphilitic (?) workman 53 years of age, who some twelve years before had experienced an attack of priapism lasting several hours. At the time of Lohnstein's observation the patient had had for the past ten days an attack of priapism, which followed coitus interruptus with his wife. The clinical findings were quite negative; there was no leukemia. All the erectile tissues were in a state of erection. The priapism gradually disappeared after five weeks, and was succeeded by loss of the erectile power, while libido and ejaculation remained.

We must consider also in this case of Lohnstein's a possible injury to the erectile tissues in coitus, since firstly the syphilis occurring in the patient's youth makes a pathologic change in the vessel walls seem intelligible, and secondly, the resulting loss of the power of erection indicates the presence of an organized extravasation of blood with obliteration of some parts of the corpora cavernosa. The best evidence for this purely local "mechanical" cause (thrombosis or hematoma) is the following experiment made by Lohnstein in a very intelligent way: he gave a lumbar anesthesia for diagnostic purposes with stovain, whereupon, perhaps as a result of the failing muscular action (transversus perinei profundus, erector penis, etc.), the penis sank down, while the size remained undiminished.

(To be continued)

REVIEW OF CURRENT UROLOGIC LITERATURE

REVUE CLINIQUE D'UROLOGIE

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2. Vesical Calculi Following Prostatectomy. By Dr. Léon Thévenot. P. 580.
3. Urethral Stricture in Women. By Dr. Stoicesco. P. 586.
4. Replacement of the Ureter by a Loop of Small Intestine. By Dr. Melnikoff. P. 601.

1. Tuberculin Treatment of Urinary Tuberculosis.

Dr. Bartrina of Barcelona draws a sharp distinction between tuberculins which have a general antitoxic action such as the old tuberculin of Koch and the "bouillon filtré" of Denys, and those which have a powerful local effect, almost bacteriolytic in nature, such as the bacillary emulsion of Koch. The author has achieved his greatest success in the treatment of non-operative or post-operative genito-urinary tuberculosis by combining the two types of tuberculins. He first accustoms the body, as it were, by using a tuberculin of the antitoxic variety, employing small doses and carefully avoiding a reaction, in the usual manner, and then attacks the focus more directly by means of the bacillary emulsion.

He reports three cases. The first was that of a young man of 18, suffering from tuberculosis of the left kidney. After nephrectomy the patient was greatly relieved for a time, but after an interval symptoms of urinary involvement returned and tubercle bacilli were again found in the urine. This time the patient was put on tuberculin therapy. Increasing doses of old tuberculin were first given, beginning with 0.2 c.c. of the fourth dilution (i.e. 1 part O. T. per 10,000). After a certain degree of immunization was obtained in this manner injections of the bacillary emulsion were started, the beginning dose being 0.00125 mg. There was very little reaction, the highest temperature being 99.8° F. Nevertheless the injections were separated by great intervals (up to 5 weeks apart) in order to obtain an absolutely afebrile period for each injection. The course of the case is very interesting. At first each injection caused considerable reaction at the local focus: e.g., pains in the kidney and bladder regions. When the dose of the emulsion became as large as 0.75 mg. there was an intense general reaction with headache and prostration and a temperature of 102.4° F. There was much *local* but on the other hand very little *focal* reaction. From that time the patient was practically well; the urine became clear, frequency ceased, and the pains disappeared. Recovery was progressive. The last dose of the emulsion was 1.55 mg.

The next case was that of a man of 60 who had a kidney removed some time previously for tuberculosis. At that time the other kidney was considered to be far from normal. Since the operation the patient

developed tuberculosis of various joints and of the lungs and was in a miserable condition when tuberculin therapy was started. Treatment was carried on in exactly the same way as in the preceding case. Result: the urinary and joint conditions apparently cured; pulmonary lesions arrested.

The third case, a man of 43, who suffered from a mild tuberculosis of the left kidney, also cleared up under tuberculin therapy.

The author also mentions three cases of tuberculosis of the epididymis two of which had been treated with tuberculin. At operation he found that in these two cases the lesions were few, showed signs of healing, and were infiltrated with calcareous salts, while in the case which had not received tuberculin the lesions were in an active stage and showed no tendency to localization or to a spontaneous cure.

2. Vesical Calculi Following Prostatectomy.

Thévenot describes six cases. The predisposing causes are little known. Among exciting causes the most important are urinary stagnation and urinary infection. As regards stagnation, though this is as a rule relieved by prostatectomy, it is not at all uncommon, according to the author, to find a *bas-fond* of some size in which stagnation is going on more than ever because of the diminished contractility of the organ following prostatectomy. Infection may be introduced at the time of operation or else the persistence of a post-operative fistula favors its development. Both stagnation and infection are favored by the persistence of a part of the prostate, or by valves or strictures formed at the junction of the end of the urethra with the mucous membrane of the bladder. Moreover operation may favor the precipitation of urinary salts by furnishing a nucleus for the formation of calculi. Such a nucleus may be a mass of pus, a few epithelial cells, a blood clot or a piece of catgut or of thread.

The mode of operation may affect the development of these calculi; in fact there is reason to believe that transvesical prostatectomy predisposes more to their formation than does the perineal procedure.

The type of calculus under discussion is formed of ammonio-magnesium phosphates, it is generally single, composed of grayish masses, irregular in shape and may be found in one of two locations: viz., either in the *bas-fond* of the bladder or else filling the urethro-prostatic cavity.

The history of a patient suffering from these calculi is fairly characteristic. There is pollakiuria, especially diurnal; these are pains radiating along the urethra; there is pyuria; there are symptoms of general infection. Such an intractable cystitis in an old patient recently operated is very suggestive of this condition and the diagnosis can be readily confirmed by cystoscopy, by exploration with a sound, or by the X-rays.

As a rule lithotritry is the operation of choice, but if the new urethra

is deformed or strictured, the bladder shrunken, or the infection general, a suprapubic or perineal section should be done. In regard to prophylaxis, regular catheterization should be employed to prevent stagnation while prolonged and thorough irrigations with various medicaments will tend to overcome infection. At the same time salol, urotropin, helminthol, etc., may be given internally.

3. Stricture of the Urethra in the Female.

Stoïcesco reports three cases of urethral stricture in women. The author remarks upon the great rarity of such cases as contrasted with the frequency of gonorrheal infections of the urethra and explains the discrepancy by the following facts. (1) The female canal is shorter and relatively wider than that of the male. (2) It does not correspond morphologically to the anterior urethra of the male where strictures are most frequent but to the posterior urethra where strictures are less common. (3) Urethral strictures in women give rise to symptoms which are not very striking or which can be explained on other grounds, and therefore the methodical examination of the parts is less often done than in the male. Thus many strictures may be overlooked.

According to the etiology, three types of strictures may be met with. *Congenital* strictures are located at or near the meatus. They result from an arrest of development of the cloaca. *Cicatricial* or *traumatic* strictures may have one of two locations. Either they occur about the meatus where they are the result of extirpation and cauterization of a urethral polyp, or else they are situated near the neck of the bladder and result from difficult labors and the application of forceps. These latter strictures are often accompanied by vesico-vaginal fistulae.

Inflammatory strictures are most commonly gonorrheal in origin. They may be single as in the second case described by the author, or multiple, as in the first and third cases. They may be situated anywhere along the course of the canal, vary in shape and require an endoscopic examination for a thorough study. The strictures vary in size; in the author's cases they were of No. 11 or 12 French, the normal calibre of the feminine urethra being 24 Fr. As complications of urethral strictures we may have retrostrictural dilatation, urethrocele or polypoid vegetations below the site of narrowing.

Frequency and dysuria are the chief symptoms of this condition. In one of the author's cases acute retention occurred at the end of a long period of slow and difficult micturition. There may also be post-mictional incontinence and the various symptoms of vesical infection.

For accurate diagnosis careful exploration with a bougie à boule is necessary. It is important to bear in mind that urethral spasms may occur in normal canals at a distance of one and one and a half cm. from the meatus. Endoscopy is also of great service.

The treatment of these strictures is either by urethrotomy or by slow, progressive dilatation. After urethrotomy a Pezzer sound, of large calibre, should be introduced and allowed to remain for two to four days.

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Systematic dilatation should always be carried out *post operationem*. In the case of a complete impassable stricture the author advises sub-public external urethrotomy, after the method of Legueu.

4. Replacement of Ureter by a Loop of Small Intestine.

Melnikoff discusses the indications and the various procedures for plastic operations on the ureter. He reports experiments on eleven dogs in which he attempted the partial replacement of the ureter by a loop of small intestine. He killed 5 of the dogs a month or two after the operation to observe the technical results. In the rest he removed the healthy kidney in order to follow the physiologic effects of his operation on the opposite ureter. His experience has justified the following conclusions:

1. The operation of replacing a part of the ureter by a loop of small intestine may come to occupy as prominent a place in surgery as does the operation of transplanting the ureter into the intestine. In fact, in certain cases it may be superior to the latter procedure.

2. In performing an implantation of the ureter into the intestine it is important to fix the upper end of the loop in order to avoid its twisting with concomitant twisting of the ureter.

3. This operation is applicable to all cases in which the permeability of the ureter is compromised and in which removal of the obstruction would necessitate a resection of the ureter at a distance from the bladder too great for the performance of a uretero-cysto-neostomy.

5. This operation may be performed in two steps (Schoemaker) or at a single sitting as the author did it in all his experiments.

ANNALES DES MALADIES VÉNÉRIENNES

Vol. VII., No. 11, Nov., 1912.

1. A Case of Cerebral Congestion of Two Days' Duration Following Three Intravenous Injections of Neosalvarsan. By J. Perkel. P. 801.
 2. A Note on the Administration of Salvarsan per Rectum. By Dr. Rajat. P. 807.
 3. The Antigen in the Wassermann Reaction. By A. Desmoulière. P. 811.
 4. Syphilis—Injection of 606—Marriage—Syphilitic Child. By Dr. Tribondeau. P. 816.
 5. Disseminated Blennorrhagic Keratosis. Recovery. By Drs. Gougerot and Meaux Saint-Marc. P. 818.
 6. Syphilis with Large Ulcerations, Cachexia, Death. By Drs. Gougerot and Bourdeau. P. 825.
1. **Cerebral Congestion Following Intravenous Injections of Neosalvarsan.**

The subject described by Dr. Perkel was a neuropathic young man, suffering from a cardiac neurosis, who contracted syphilis and was in the secondary stage when treatment was commenced. On the 19th of June 0.75 gm. of neosalvarsan were injected intravenously with very slight reaction. On the 21st 0.9 gm. were injected. Slight chills;

lesions improving. On the 24th 0.9 gm. were again given. The pulse became slow and feeble, there were violent chills, the temperature rose to 101° F. The next day the condition was somewhat better. On the 26th the patient refused food. He was excited, face flushed. There was a rubeolar eruption on the trunk. Paraphasia and confusion of ideas; headache. Pupils dilated and reacted feebly to light. Loss of patellar reflex on the left side; diminution on the right. Patient became very agitated, recognized no one; had twitchings of the extremities. Face red and swollen; eruption on body more pronounced. Condition the same throughout the whole night. June 27, symptoms the same but general condition better. June 28, the patient regained consciousness, speech was better and appetite returned. Headache still present and face flushed, but rash fading. June 29, patient much better. July 1, out of bed. July 3, Wassermann negative.

The author feels that the short intervals and relatively large doses (2.55 gms. in all) employed in this case were responsible for a cumulative intoxication which localized in the nervous system of a neurotic individual.

2. Administration of Salvarsan per Rectum.

Rajat has injected 125 doses of Salvarsan by the rectal route. He claims that this method is much less disturbing to the patient than the procedures generally employed. The administration can be made in the office and the only after effects are slight headaches which persist for 3 or 4 days and which are an indication that the drug has been absorbed.

On the morning of the injection the patient receives an enema of $\frac{1}{2}$ to 1 litre of water. He then takes 2 teaspoonfuls of paregoric to tie up the bowels. The dose of Salvarsan is dissolved in artificial serum in the proportion of one part to a thousand. The mixture is warmed and rendered very slightly alkaline with soda and is stirred thoroughly to effect complete solution. About 120 c.c. are given. This amount is drawn up into a rubber syringe and injected slowly into the rectum with the patient lying on the side. The patient is cautioned not to use the commode for the next 36 or 48 hours.

The author gives details of three cases. The first was that of a pregnant woman who had returned from the tropics where she had malaria and syphilis, the latter three years before. She was delivered normally of a syphilitic child. For the week following labor she had fever, pains in the legs, stiffness of the neck and eruption on the body. Salvarsan (0.6 gram) was given by rectum. The same day the temperature fell and subsequent relief was rapid. A month later the dose was repeated. Six months later the patient was in excellent condition. The second case was a gumma of the lip. It was cured entirely after two similar injections. The last case was that of a tabetic with a distinct syphilitic history. He could not walk without support and

urination was very difficult. Intensive mercurial treatment had been of no avail. He was given 6 doses of 0.4 gram each at intervals of two weeks. Each injection was followed by dizziness lasting for 3 to 4 days. His symptoms were definitely improved.

3. The Antigen in the Wassermann Reaction (Second Note).

In this communication Desmoulière states that he hopes to achieve the following objects with his preparation of syphilitic antigen:

1. To enable all workers to obtain similar results in a given case.
2. To detect syphilis at its very onset, that is, at a period when the original Wassermann reaction is negative.
3. To detect syphilis in cases where the original Wassermann reaction gives doubtful or negative results.

The antigen is prepared as follows: Liver tissue from a syphilitic fetus is powdered and completely extracted with ether. This removes fatty acids, neutral fats, cholesterin, etc. The powder is then dried in air, later in the thermostat at 37°. A gram of the dry powder is then macerated for 72 hours at 37° with 20 c.c. of absolute alcohol in a carefully stoppered bottle which is shaken from time to time. The solution is filtered and 10 c.c. thereof are treated with 0.1 gram of pure cholesterin.

Before using the antigen in a test, it should be diluted with 15 volumes of physiologic saline. This gives a cloudy mixture, but no distinct precipitate should be visible. A preliminary titration (involving all the elements of the reaction save the syphilitic amboceptor) should then be made to determine the exact amount of antigen necessary for complete hemolysis. The tubes for the given test may now be set up in the usual manner. For interpreting results Desmoulière uses a color scale consisting of tubes made up with 8 definite strengths of a fuchsin-picric acid solution.

4. Birth of Syphilitic Child Despite Salvarsan Treatment.

The author was called to see a young woman of 20, in labor. She had a history, and showed some signs, of pulmonary tuberculosis, but was in good general condition. Labor was normal and the child was apparently healthy. He was given in charge of a wet nurse whose child was perfectly normal. The baby did not gain much in weight and three weeks later was brought back to the author with a typical syphilitic eruption of one week's standing. On questioning the mother, it was elicited that six months before her marriage she had been violated and infected (anal chancre). During the next three months she received two injections of Salvarsan and was assured by her physician that she was perfectly cured.

Fortunately the wet nurse had not been infected. The baby was put on bottle feedings to which a little Van Swieten's liquor (mercuric chlorid 2 gr., alcohol 3 dr., distilled water ad 4 oz.) had been added.

The child picked up at once and in two weeks the rash had entirely disappeared.

The author cites this case as illustrating the harm of overconfidence in salvarsan alone without supplementary mercurial treatment.

5. Disseminated Blennorrhagic Keratosis. Recovery.

The case reported by the authors is of interest because of the wide distribution of the lesions and the rapid cure following the administration of urotropin. The patient was a mason who contracted his gonorrhea in the middle of May. At the beginning of June he was seized with arthritis which involved several joints and caused the patient to take to his bed. At the beginning of July there appeared groups of little horny, cone-shaped papules with translucent centers symmetrically arranged on the dorsum of the fingers and toes and on the palms of the hand and soles of the feet.

When the patient entered the hospital in August weak, pale, emaciated, and suffering greatly from his gonorrheal joints, the skin lesions were full blown. The fingers, palms, and dorsum of the hands were completely involved in a veritable glove of horny epidermis. There were hardly any intervals of normal skin. The nails were thickened, striated and about to fall out. The feet were similarly affected. There were isolated papules on the posterior aspect of the elbows, on the external surface of the left arm and in the anterior part of both axillae. In addition a recent vaccination scar had undergone the characteristic horny overgrowth.

On close examination each isolated lesion was found to consist of a yellowish thickening of the epidermis surrounded by an erythematous, congested area. The cone shaped papule could be easily scratched off but was rapidly reproduced within a few days. Where the eruption was confluent it gave the skin a wrinkled, infiltrated appearance.

There was no longer any urethral discharge. A search for gonococci in the epithelial scales, was, as in all previously reported cases, unsuccessful. The author points out that the seat of the lesions was where there was the greatest irritation. Thus the hands, owing to the man's occupation, had been constantly kept in water, the feet were always sweaty, and the other regions including the point of vaccination were those exposed to constant irritation.

The patient was put on aspirin (15 grains) to control his joint pains, and urotropin (12 grains) for its antiseptic action on the urinary passages. By the end of October his skin eruption had disappeared; the injured nails were being replaced by new ones. Local treatment with salves was tried on one hand but it was found that this member healed more slowly than that which was simply exposed to the air.

6. Syphilis With Large Ulcerations, Cachexia, Death.

It is indeed rare nowadays to see such advanced and fatal cases of syphilis as are described by the authors. The present case gave a three years' history of eruptions on the body. The woman presented

two large ulcerations on the left thigh, one measuring 10 by 4 centimeters. The skin of the right thigh was almost entirely replaced by cicatricial tissue. An ulceration involving the anterior and lateral aspects of the right knee measured 16 by 19 cm. Only the popliteal hollow was intact; the condyles of the femur were entirely exposed but there was absolutely no signs of joint infection. The right leg showed several ulcerations. The left leg was flexed on the thigh, the knee joint being fixed by cicatricial bands.

The lesions were all characteristic in appearance. The ulcers were torpid, the borders punched out, not overhanging, the base bloody; there was pigmentation of the surrounding skin. There were also organic lesions: ascites was present, the liver was enlarged and cirrhotic. There was profound cachexia, the facies were earthy, the body wasted, the extremities edematous. The Wassermann reaction was positive.

Specific treatment was commenced, small doses being used because of the poor general condition: one-sixth of a grain of benzoate of mercury and 15 grains of potassium iodide were given daily. The skin manifestations cleared up quickly but the cachexia increased and digestive and urinary disturbances supervened so that treatment had to be discontinued. The patient gradually grew worse and finally succumbed.

The authors conclude from this case that although mercury and the iodides may be relied upon to clear up the most severe skin lesions of syphilis, they are by no means so certain a remedy when the viscera are affected, and a more guarded prognosis should therefore always be given in such cases.

MISCELLANEOUS ABSTRACTS

X-Ray Treatment of the Testis for Prostatic Hypertrophy.

O. Ehrman (*Munch. Med. Woch.*, March 26, 1912), reports two cases of prostatic hypertrophy treated by raying the testicles. One of the patients was markedly improved, the other uninfluenced by the treatment. In the first case there was a history of frequency of urination with attacks of hematuria and urosepsis extending over a period of six months. The urine was cloudy with a residuum of 500 cc.; the prostate was very large and rather hard. No amelioration of symptoms having taken place after the usual methods of treatment, the author rayed both testicles for about 10 minutes. Marked improvement began to manifest itself 8-10 days later, the residual urine becoming less in amount and finally disappearing, the urine becoming perfectly clear. Catheterization could be discontinued, and the patient's general condition improved markedly. The prostate and both testicles became considerably smaller. Three months after the rays were applied there had been no recurrence of the symptoms.

The second patient was rayed twice without success. The prostate in this case was of the hard fibrous variety. According to Hock, the treatment is only of value in the large, soft, congested variety of prostate.

BOOK REVIEW

DIE PROSTITUTION, Dr. med. Iwan Bloch, Erster Band, Louis Marcus Verlagsbuchhandlung, 1912, Berlin.

Sexology as an independent science is of but recent origin, and among its representatives there is no one more eminent, more thoroughgoing, more conscientious than is Dr. Iwan Bloch. His clear insight and his painstaking industry he has demonstrated in his previous works, particularly in his "Origin of Syphilis" and "The Sexual Question of Our Time." His latest work on prostitution, the first volume of which has just made its appearance, is another example of the indefatigable industry of the man. This work makes all previous works on the subject of prostitution antiquated and superfluous. Every phase of prostitution, in the deepest antiquity, in the middle ages, in the present time, in the Orient and in the Occident, is discussed in the smallest detail and with numerous references to original sources. In fact, hardly a statement is made for which the original authority is not given.

The author considers prostitution a reaction against the restraint of sexual relations, which restraint was put on by civilization, and in spite of the fact that prostitution has had its roots in the deepest antiquity, the author believes that it can be and must be uprooted. The influence of prostitution on the development of art is very interestingly pointed out by the author, for it must be remembered that in ancient times music and dancing were accomplishments of the prostitutes exclusively. The influence of ancient prostitution on society and literature in general is also very exhaustively discussed. The author fully approves of concubinage, believing that it is morally justifiable for a man to have one or more women in his house in addition to his legal wife, and he believes that the abolition of concubinage as a legal institution was decidedly a step backward, giving a great impetus to prostitution. The author explodes the fables that we have been taught in school, that the decay of the Greek and Roman civilizations was due to sexual immorality. He shows what all students should know, that it was due to economic conditions.

The chapter on homosexual prostitution is exceedingly interesting and the author shows that this perversion, which some consider of modern origin, was much more widespread in antiquity than it is in the present time. Altogether every page of Dr. Bloch's book is full of instructive and interesting information.

It is impossible in a brief review to discuss fully the excellence of the work. It is sufficient to say that nobody interested in sexology can afford to be without Dr. Bloch's volume on Prostitution.

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THE FUTURE OF THE NEPHRECTOMIZED

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DESPITE the experimental results of Zambeccarius and Blancard at the end of the seventeenth century, and those of Comhaire at the beginning of the nineteenth; despite the more recent achievements of the physiologists Prévost and Dumas, Claude Bernard and Meissner; despite even a certain number of accidental or intentional operations which turned out successfully (Wolcott, Spiegelberg, Peasle, Spencer Wells, Simon of Heidelberg), nephrectomy has only entered surgical practice within the last thirty years.

A perusal of the papers published during the years following 1880 shows that after taking a long time to overcome the opposition of surgeons, extirpation of the kidney thenceforth engrossed their attention, captivated it entirely, and to such an extent as to make nephrectomy take the place of the operations of nephropexy, nephrotomy and the other conservative procedures. But a reaction had to take place, based, on the one hand, upon the pathogenesis and the pathological anatomy of the renal affections and on the other hand upon the physiology of the operations directed towards their remedy, and this reaction finally permitted the assignment of the proper place to each procedure.

The determination of the indications for nephrectomy, while defining the limits of its domain, has completed the conquest of this operation. Its successes are durable, a fact which is attested by the innumerable observations of our day on patients

extending over many years. But if it seems to follow from the teaching of clinical experience that, in the *great majority* of cases, this mutilation has no influence on the organic future of those who have undergone it, can one affirm that it will always and definitely turn out so? To be sure, in order to explain the indefinite survival of animals experimentally nephrectomized, anatomists have invoked the large field offered to the purification of the blood by the glomeruli and tubules, and the physiologists have mentioned the great amount of renal tissue possessed by the organism, a quantity three or four times greater than is demanded by the mere maintenance of existence; but nephrectomy practiced on man for affections of the kidney which have disorganized its parenchyma and which can also affect by divers mechanisms the other kidney, admits of other consequences than those which one deals with in the case of the animal. If the single kidney of a nephrectomized person suffices to assure him of the urinary function during the normal conditions of health, will it do the same in certain physiologic conditions, such as pregnancy, or in pathologic states, as in an infectious disease, or even after a simple organic disturbance, such as operative or accidental trauma?

Far be it from me to pretend, in the Report which I have the honor to present to the Fourteenth section of the Sixteenth International Medical Congress to solve all the points which are raised by the problem of the future of the nephrectomized, but I shall consider myself fortunate if I shall have succeeded in fixing the attention of my eminent colleagues on a question which in importance passes the limit of individual interests and enters those of society at large.

A large number of works has fixed our attention in late years to the distant results of nephrectomy in the various renal affections. To these I shall have nothing to add, and it is from a more general point of view that I propose to consider this question of the future of the nephrectomized. Considering the ablation of the kidney by itself and independently of the nephropathic condition which has demanded it, I should like to ascertain the conditions in which an individual so mutilated henceforth finds himself situated when brought face to face with the various organic disturbances to which he is exposed, and when having to fulfill his various social duties, such as marriage, military service, life insurance, etc.

I

ANATOMIC AND FUNCTIONAL MODIFICATIONS SUPERVENING IN THE
KIDNEY REMAINING AFTER NEPHRECTOMY

As these modifications *a priori* cannot be indifferent to future pathology of the remaining kidney, it is necessary to recall them before we go any further.

Tuffier, Paolo-Fiori, Castaigne and other experimenters have determined the quantity of renal parenchyma necessary for the maintenance of life, and have shown that this quantity corresponds approximately to one-third or one-fourth the combined weight of the two kidneys. In reality, this extreme reduction of the secretory field can suffice the needs of the organism for several days, thanks to its temporary tolerance for the excrementitious substances which it stores, but soon there break out grave symptoms of uremic intoxication, unless the remaining portion of the kidney has undergone a compensatory hypertrophy. This compensatory hypertrophy is never wanting either in the case of animals or of nephrectomized humans, and even when the single kidney has been preserved in its entirety, it never fails to undergo this change, as if nature, by this effort, wished to restore to the organism those reserve fields of secretory territory of which it had been deprived.

Tuffier and Paolo-Fiori, long after Simon, have studied experimentally the hypertrophic development of the remaining kidney and have followed its various phases which require from 20 to 25 days for their completion and for the increase of one-fifth or one-sixth of the original weight of the organ.

Its anatomic substratum consists less in the proliferation of the interstitial elements of the renal gland than in that of its parenchymatous elements. The lesions which introduce themselves — and I make use of this expression purposely — into the midst of the renal tissues in order to accomplish this compensatory process recall in a singular manner those of the first stages of nephritis and in certain cases can completely resemble the latter. In fact, the microscopic changes, clearly evinced twenty-four hours after nephrectomy, consist in a more or less intense congestion of the interstitial tissue, likely to border on a serous or even diapedetic infiltration; at the same time the epithelium of the glomeruli and principally of the tubules swells up and the cells multiply by karyokinesis (mitosis) to the point of filling

the lumen of the tubules and of giving rise, upon their desquamation, to the formation of cylinders. Soon this process, which does not reach all the glomerular systems and does not take on the same severity in all which it has reached, becomes less severe and finally dies away, leaving the glomeruli and tubules in various places enormously dilated and fringed with layers of very large epithelial cells.

Such is the process of compensatory hypertrophy after nephrectomy. Contrary to the contentions of Tizzoni and Pisenti, Tuffier and Tillmans, there is no formation of new glomeruli and tubules, but simply an increase in the volume of those pre-existing. This opinion, which accords with what is known of the compensatory development of the other parenchymatous organs, is defended authoritatively by Golgi, Eckardt, O. Van der Stricht, Rosenstein, Sacerdotti and Albarran.

The modifications observed as regards the secretion of urine after nephrectomy by Simon, Tuffier, Paolo Fiori and others interpret the organic changes which take place in the kidney. They consist in the diminution of the quantity of urine, it falling to one-third or one-fourth the previous amount for three or four days, only to increase very rapidly and to exceed normal thereafter. The content of urea of chlorides and of phosphates undergoes parallel oscillations. Almost always a small quantity of albumin can be noticed, and in the abundant deposit, the presence of leucocytes, blood casts, and of isolated renal epithelia, in the form of plaques or of cylinders, can be established. Thus in the same way as the structural alterations of the kidney, the changes in the urine after the ablation of the healthy kidney in a healthy animal indicate in the congener the existence of a veritable process of interstitial and parenchymatous nephritis, just as Paolo Fiori remarks.*

The ingenious theories of cytotoxins, nephrotoxins, hematoxines, so brilliantly defended by Castaigne and Rathery, Albarran and Bernard, permit us to interpret the genesis of biologic modifications of the kidney remaining after nephrectomy. These modifications are due to the action on the interstitial tissue, but more especially on the parenchyma, of toxic substances which accumulate in the blood upon the suppression of the one kidney

* Is it to the development of this nephritis that are due the pains in the remaining kidney of which certain nephrectomized patients have complained to me?

and before the other can get into a condition where it can take them out of the blood current. Sacerdotti, having practiced double nephrectomy on several dogs, transfuses their blood, thus forcibly charged with products of disintegration (disassimilation) into a dog bled previous to each transfusion. He then finds that this animal secretes a urine very rich in salts, and that the kidneys, on removal, present a marked hypertrophy. The limitation of the inflammatory process to the phase of hypertrophy doubtless has for its cause the relatively feeble toxicity of the blood and the rapid restoration of the field of elimination by the incited kidney.

The experimental results which have just been presented are evidently applicable to human clinical conditions, when nephrectomy is practiced for renal traumatism or even for nephroptosis; *but are they equally applicable when this operation is undertaken for an affection, acute or chronic, suppurative or non-suppurative, diathetic or non-diathetic, recurring later in the congener or else attacking it at the same time as the first?* Observation proves peremptorily that this is so, toxic nephritides following different diseases of the kidneys; nephritides, which we well know to-day, are not a contra-indication to nephrectomy, rather the contrary in fact, since, when the diseased kidney, which furnishes these conditions with nourishment by means of its nephro-toxins, is once removed, they become cured, provided that they have not advanced too far in their evolution and that the organism itself is not too much intoxicated. Just as in the case of the healthy kidney, the diseased kidney then becomes adapted to the compensatory hypertrophy.

Moreover, in a great number of subjects, hypertrophy of the remaining kidney is already developed even before the ablation of the diseased kidney, thus offering the urinary secretion a substitute field already prepared for work. This providential hypertrophy, already reported in the destructive affections of one kidney by Rayer, has been seen by Storck, Steiner and Neureutter, Valentin, Rosenstein, Rokitansky, and more recently Golgi and Nauxerx and Chauffard have seen it and studied it histologically in chronic medical nephritides. Albarran, who had long since shown the existence of hypertrophied zones in the sclerotic kidneys of the old, has lately shown the variability of this compensatory effort of the healthy or supposedly healthy

kidney according to the nature of each affection: In uronephrosis, which causes a gradual and aseptic atrophy of the kidney, hypertrophy is perfect and is comparable to that which follows experimental nephrectomy. Aseptic lithiasis is accompanied by a real although slight hypertrophy and the enlarged kidney presents sclerotic zones resulting from a diathetic nephritis. In pyonephrosis the compensatory process is *nil* if the kidney is the seat of an infectious nephritis secondary to a toxemia originating in the renal suppuration, but it exists, although very little developed, in the absence of this nephritis. The same remarks apply to the condition of the opposite kidney in tuberculosis and in cancer.

Are the modifications observed in the remaining kidney during the interval following nephrectomy permanent, and does the kidney indefinitely retain this advantage so that it may assure the process of urinary secretion in all its integrity?

One finds mentioned in a certain number of observations upon subjects seen several years after nephrectomy that the remaining kidney is notably larger than a normal kidney, that it is perceptible by palpation and runs over into false boundaries. For my part I have often made this determination in the case of my old patients. Radiography is much better than palpation for revealing this increase in size, which is considerable in the case of the subject examined by Lipmann 14 years after nephrectomy. In certain rare cases acromegaly has been established postmortem by mensuration and weighing. In the case of one of my patients who died from an acute pulmonary affection one year after the removal of the right kidney, the left kidney was elongated in the form of a sausage measuring 17 cm. in length and weighing 190 gr.

There exist only a very small number of histological examinations of the remaining kidney, but all those which have been made show that the increase in volume relates less to the interstitial tissue than to the glandular tissue, so that we have under consideration a condition of true hypertrophy. In the kidney of the patient of whom I have just spoken the histological sections show an enormous development of glomeruli bordered with epithelial cells several rows thick; the convoluted tubules being also very much dilated and their epithelium very much hypertrophied, and some of the tubules containing hyaline cylinders and being enclosed in a newly formed sclerosis.

Chemical and histological examination of the urine, as well as the tests with methylene blue, phloridzin and with the other substances designed to give information as to renal permeability, reveal in the majority of cases a complete return of renal function and this is just as true when nephrectomy has been performed for the infectious diseases (simple or tuberculous pyelonephritis) or the diasthetic affections (lithiasis), as when it is performed for conditions which do not affect the anatomic elements of the kidneys (nephroptosis, traumatism). Urea, the chlorides, the phosphates, and uric acid are eliminated in normal quantities, and undergo all the variations which elimination, exercise, fatigue, etc., are capable of causing. The urine is free from albumen. In the sediment examined there can be found no leucocytes, blood clots, or renal epithelium.

But such is not always the result, and in a fairly large number of subjects one can find for still many years after nephrectomy persistent urinary trouble, both quantitative and qualitative in nature. These troubles, it seems to me, are less the results of the process of interstitial and parenchymatous nephritis, which, according to Paolo Fiori, occur in the remaining kidney after the ablation of its fellow, than of lesions with which the kidney itself was affected at the time of intervention. It is known, in fact, that along with functional disturbances engendered by the reflex route in the healthy kidney, and which cease at once after the ablation of the diseased one, there exist lesions of the same pathogenic order, which can likewise be checked by nephrectomy but in a less constant manner. The age and intensity of these anatomic changes explain their persistence, but except in those cases where the original disease attacks in turn the remaining kidney they remain more frequently in the same condition.

In the case of those patients operated on whose kidney was previously affected, the amount of urine is in general increased, varying between 1500, 2000 and 2500 c.c., and recalling the polyuria of Bright's disease. The urine is usually pale and transparent, but often somewhat dark and depositing an abundant sediment. The urea, chloride, phosphate and sulphate content remains within normal limits, but in making daily analyses for several days at a time it is found that this content sometimes varies from day to day in considerable proportion without the alimentary regime or the other conditions of the patient's life

having been in any way modified. The periodicity of the eliminations is disturbed. Reagents generally reveal the presence of a minimal quantity of albumen, rarely exceeding 0.2 to 0.3 cg. The sediment contains some leucocytes, rarely blood clots, but often isolated renal epithelia and epithelial cylindroids. Clinical observation shows that, despite these alterations in the urine indicating the existence of a kidney lesion, a nephrectomized individual can live for many years without noticing any aggravation in this condition and can even overcome various diseases without much inconvenience. It is none the less true that his resistance is diminished, and that his organic equilibrium, having but a vitiated support in the remaining kidney, will always be in danger of disruption.

Thus the study of the kidney function of patients previously nephrectomized teaches us that they must be divided into two categories: *those who entirely recover their physiologic functions and those who retain more or less definite disturbances of these functions.* The latter are in the minority.

It would be interesting to know what influence the nature of the affection which led to nephrectomy has upon the genesis and the persistence of the lesions which for a long time thereafter, and perhaps forever, disturb the renal functions. I am not in possession of sufficient data to solve this problem.

In his researches upon the results of nephrectomy Simon asked himself the question if the suppression of the large vascular territory caused by the ablation of the kidney would not be likely, according to the theory of Traube, to raise arterial pressure, and thus determine a resulting hypertrophy of the left ventricle of the heart. This question he answered in the negative, remarking besides that the compensatory hypertrophy of the remaining kidney was calculated to prevent hypertension. Gravitz and Israel, for their part, think that dilatation of the heart can only occur when the kidney does not increase in volume. I have not found in any of the reports of the already old nephrectomies, nor have I been able to determine in the case of those nephrectomized individuals whom I myself have examined, any hypertension of the arteries or any hypertrophy of the heart. Le Dentu, whose attention has been directed to this point from the time of his very first studies on renal surgery, reports that in one of his subjects, examined four years after operation, Damaschino has not been able to find a single sign indicating

either anatomic or physiologic disturbance of the heart or of the vessels. It is well known, besides, how much ground has been lost in our day by the mechanical theory of hypertension of the arteries and dilatation of the heart in cases of renal sclerosis. The mechanical role which these factors play is only secondary, but it is quite real when vascular changes supervene which can, among other points of departure, admit renal insufficiency and uremic intoxication. Although I have not been able to recognize any anatomic or clinical hypertrophy of the heart in the case of nephrectomized patients suffering from uremia, I cannot deny the possibility of the phenomenon which has been established by Castaigne in animals. At the autopsy of a dog who had died from uremia, following the successive ablation of renal tissue, this author found a hypertrophy of the left ventricle, recalling the "corbovium," which had for its substratum the development of the cardiac fibre without sclerosis. According to Castaigne, this hypertrophy was the result of the slow uremia and was intended to combat the renal insufficiency.

II

VALUE OF THE SINGLE KIDNEY FROM THE POINT OF VIEW OF PURIFICATION OF THE BLOOD IN THE VARIOUS PHYSIOLOGIC AND PATHOLOGIC CONDITIONS

Knowing the anatomic and functional modifications which exist in the remaining kidney after nephrectomy, I shall discuss, in the second part of my report, the ability of this kidney merely to ensure henceforth the purification of the blood in the various physiologic and pathologic conditions of the organism.

Resistance of the Single Kidney to Intoxications and Infections.

Bonardi has studied experimentally in nephrectomized animals the resistance of the remaining kidney to infection by inoculating rabbits with bacterial cultures from patients suffering with pneumonia, anthrax, and tetanus, and its resistance to intoxication by injecting into them a ten-per-cent solution of plum-bicacetate. He concludes from his results that this resistance is notably diminished. The clinic does not seem to confirm these results from the laboratory, for numerous cases tend to show that nephrectomized patients resist both intoxications and infections very well. Thus, as regards intoxications, Carrier has

reported the history of a man who, having contracted syphilis in the course of a tuberculosis of the left kidney, could not bear any form of mercurial medication which was accompanied, among other disturbances, by one of the most intense forms of stomatitis. Nephrectomy having been practiced, the patient could, three weeks later, bear the mercurial preparations without the least inconvenience. Thus in this case not only has nephrectomy not diminished the eliminative power of the remaining kidney, but it has even increased it. One no longer takes into account the observations on nephrectomized subjects who have survived the infectious diseases. Syms, cited by Tuffier, has seen a scarlatina cured in 10 days after a nephrectomy and has himself seen one of his patients go through a grippe and a pneumonia without incident. Kallionzis has informed me that he has seen several cases of marsh-fever run their course in nephrectomized individuals without any complications. Nicolich has reported a case of typhoid fever with renal involvement of the most intense character, in a woman from whom he had removed the left kidney 5 years previously for a tuberculous pyonephrosis. This patient recovered, although at one time her urine contained 8% of albumen and a large number of granular cylindroids and some blood clots. Kapsammer has communicated to me the case of a patient nephrectomized for tuberculosis of the left kidney who had six months later an infection of the right epididymis and one year later a pleurisy of the right side, and who recovered. Régnier has cited the case of a young man who had had a blenorrhagic cystitis after a nephrectomy for tuberculosis, without the infection extending to the remaining kidney. I could report many other examples of the resistance which subjects deprived of one kidney offer, not only to infection of the remaining one, but also to general disorders of the organism, a proof of the integral re-establishment of the renal function. I consider this useless, however, as each surgeon has several cases of his own.

It is not so in all cases, and it is worth bearing in mind that a small category of the nephrectomized retain renal lesions, which diminish their means of defense against infections. Still it is necessary for these lesions to be profound and extensive in order to create mortal dangers. It is thus that Castaigne reports the case of a woman nephrectomized in childhood for an unknown affection. After this operation she developed in a perfectly normal manner; when she became *enceinte* her pregnancy

and her delivery offered no complications, but several weeks after her confinement, having been stricken with what appeared to be a mild thoracic form of the grippe, she had several convulsive crises to which she succumbed. At the autopsy, her single kidney was found to weigh 35 grams; the renal substance was much altered and presented diffuse sclerotic lesions. Thus, despite the small size of this stump of a sclerotic kidney, she had been able to live many years and even resisted the auto-intoxications of pregnancy and the exhaustion of labor without presenting complications due to renal insufficiency. The kidney failed because uremia came on when the infection of grippe was added.

Effects of Nephrectomy on the General Health and on the Development of the Individual.

These effects are well known by both surgeons and physicians. The latter can thus compare the results of internal medication with the surgical effects in the suppurative affections and notably in nephro-tuberculosis. Nephrectomy, by suppressing the sources of septicemia and permitting the remaining kidney to recuperate its purgative functions, which are often hindered by reflex influence, restores general nutrition and causes actual resurrection in a few weeks. But I do not wish to insist on this aspect of the question, for it has been but too often studied by those who, while not considering the remote results of extirpation of the kidney in its various affections have directed their energies to determining the operative indications and contra-indications and towards calculating in advance the chances of cure. While keeping strictly to the general point of view, I should like in these paragraphs to determine what influence nephrectomy has on the development of the individual when it is practiced in adolescence or in infancy.

The influence seems to be *nil*, as is indicated by the following cases. Israël examined a young girl of 14 years on whom he had operated when she was 6, for a fusocellular sarcoma of the left kidney. Abbé has determined after a period of six and one-half years the survival of a child from whom he had removed, when it was 13 months old, a renal sarcoma weighing one-half the entire weight of the little patient. Doederlein and Birch-Hirschfeld followed for six and one-half years the condition of a little girl on whom they had operated at the age of 7 years for a myxosarcoma which had filled the entire left side of the

abdomen. Martin (of Geneva), having removed the left kidney of a child of two years for a congenital hydronephrosis, wrote me that the patient, now 18 years of age, presents a normal development.

There is a phenomenon which I have determined rather often in the case of patients whom I have nephrectomized for tuberculous lesions more or less advanced (the cases were all women), and it is to this phenomenon that I wish now to call attention. This phenomenon consists in the passing of large quantities of sand in the urine, which did not contain any before the extirpation of the kidney. I believe I can attribute this to the increased alimentation, to the upbuilding and tonic medication to which my patients were submitted, and more particularly to the employment of preparations of mineral bases. Contrary to what one might a priori expect, these subjects, who have but a single kidney constantly irritated by the sand which it has to eliminate, still preserve the anatomic and functional integrity of their renal parenchyma.

Pregnancy, Complications Following Confinement, Nursing.

Being told the mechanical disturbances which the gravid uterus can impose upon the circulation of the blood in the kidney vessels and the passage of the urine through the ureter on the one hand, and on the other the lesions which the autointoxications produced in the course of pregnancy can engender upon the epithelia, we may well ask if nephrectomy, by restricting the field for the purification of the blood, does not compromise the development of pregnancy and of its fruit. Observation has shown that the fears held in this respect were chimerical. Every surgeon has reported cases of normal pregnancies in nephrectomized women. I shall cite the cases of Israël, of Brun, of Schramm, and of Tuffer. Tredondani has observed the case of a patient who had three normal pregnancies and deliveries after nephrectomy. Pauchet has reported to me a case of three similar pregnancies in one of his patients; Antoux operated on a woman for nephrotuberculosis, and she later had four healthy children.

Nursing is no more interfered with than pregnancy as a result of nephrectomy. Kallionzis has informed me of several cases in which patients were able to nurse their children in the best manner, despite the fact that they lacked one of their kid-

neys. I personally know of a woman whose left kidney I removed for tuberculosis when she was twenty-eight years old, who became pregnant four years later and bore a strong and healthy child and who was able to become a wet nurse after having suckled her infant eight months.

All these published cases of pregnancy and nursing give no information as regards the anatomic and functional state of the kidney, but it is probable that its condition was normal. When, indeed, there exist those slight nephritic lesions of which I have spoken on several occasions, and which characterize the second class of patients who have undergone nephrectomy, there is cause to fear the breaking out of the uremic symptoms which constitute eclampsia, especially if some intercurrent infectious disease adds its own toxins to those formed by the organism of the pregnant woman. In this respect the sequelae of abnormal and septic labors doubtless offer great danger in the case of women who have lost a kidney. Local infection should therefore be prevented and carefully warded off, always taking care to avoid the use of antiseptics which would by their toxicity be dangerous to the renal epithelia.

But here I speak theoretically, not having been able to find either in the literature or in the answers which I have received from eminent colleagues, a single case of pregnancy and of labor complicated by abnormalities or by infectious disease in women previously nephrectomized.

Trauma, Operations, Anesthesia.

Except for the sudden death of a nephrectomized patient as the result of an accident, a case which I shall report later on, I have not been able to find a single fact which could aid me to determine the vital resistance of a subject who has undergone the extirpation of a kidney against accidental trauma. Here again I am obliged to resort to hypothetical but rational considerations.

Of the various theories which have been invoked to explain the alarming and often rapidly fatal phenomena of traumatic shock, that of Verneuil, who postulated a rapid alteration of the blood in individuals presenting previous lesions of the principal viscera, and in particular of the kidney, is such as to lead one to think, *à priori*, that the great accidents which disturb the economy must assume in the nephrectomized a particularly seri-

ous character. We shall see, however, that these subjects can undergo major surgical operations without danger. In the case of open traumata (wounds contused by tearing, by crushing, by the contact and splintering of projectiles) the purifying action of the single kidney is attenuated by shock and by the action of the septic products elaborated at the surface and in the pockets at the source of septic disintegration. Burns of any size, because of the phenomena of intense hyperemia which they determine in the viscera and in the kidney in particular, and above all because of the poisons which are elaborated in the disorganized tissues by the direct application of excessive heat, must undoubtedly have their already somber prognosis considerably aggravated in the case of the nephrectomized

There are a large number of observations which prove that even the most serious surgical operations can be successfully performed in the case of patients possessing but one kidney. But it goes without saying that such operations should only be undertaken when one is assured of the proper functioning of the kidney and that prudence should be exercised in the course of the operation and in the subsequent dressings as regards the employment of antiseptics, so as not to kill the patient by intoxications when seeking to fortify him against infection.

Here are some cases which support the fortunate results of operative trauma in the nephrectomized. Bartos was able to perform a successful lithotrity on a medical student whom he had previously nephrectomized for tuberculosis. Jeannel performed a successful operation for lumbar hernia in a woman nephrectomized sixteen years before for pyonephrosis. Kapsammer, having removed a calculous pyonephrotic kidney from a woman of 38 years in March, 1900, was able, in October, 1906, to remove a mammary cancer with large ganglionic masses in the axilla, and obtain an operative cure. Rovsing operated on a man of 51 for a sarcoma of the left kidney. This was on June 4, 1898; on August 31, 1901, this man underwent an amputation of the left arm for a metastatic osteosarcoma. The man was still alive in September, 1902. My colleague, Princeteau, while he substituted in my service, performed laparotomy on a young woman from whom I had two years previously removed the right kidney for a pyelonephritis due to the coli bacillus. Contrary to the diagnosis which he had made of a uterine fibroma, he found himself confronted with a pregnancy of four months. On closing

the belly, pregnancy continued, but ended by the expulsion at term of a dead infant. Legueu reported to me the case of a patient whom he nephrectomized during her pregnancy without this having any influence on that process. Giordano sent me the following report: A woman, whose left kidney was removed in 1900, was able, in the following years, to undergo a nephropexy of the remaining right kidney, an appendectomy during pregnancy which nevertheless continued its course, finally a laparotomy for tuberculous peritonitis. After all these operations this woman enjoyed very good health. Nicolich, at the ninth session of the French Association of Urology, reported the history of a patient, who, after having been nephrectomized on the left side in 1899 for hemorrhagic nephritis, was successfully lombotomized (incised in the lumbar region down to the renal capsule) in 1900, nephrectomized in 1903 and finally decapsulated in 1905 for repeated nephrorrhagia. Her hematuria had ceased and this woman was perfectly well four months after the last operation.

The action of anesthetic agents on the anatomic elements of the kidney is the last question which I have to consider. From experiments performed on animals by Barbacci and Berbi, and more recently by Coyne and Cavallié at Bordeaux, on the comparative anatomic effects of ether and chloroform, it follows that while the former determines a diffuse, transient, epithelial nephritis, spontaneously and completely curable, the second provokes a parenchymatous nephritis with a great tendency to assume the chronic form. These laboratory findings are confirmed by the results of chemical analysis of the urine. Butler, Roux, Vaadt, Barendsfeld, Deaver, have only rarely found albumen, and then only in a transient form, after ether narcosis, while Lutze, Luther, Rindskopf, Alessandri, have found albumen after chloroformization and also, on rather frequent occasions, hyaline and granular cylindroids, indications of renal lesions. When these lesions pre-exist they would be aggravated as a result of inhalation of chloroform, according to Luther and Wanderlich. Without disputing the exactness of these results, I believe I am right in affirming, together with all other surgeons, that if the examination of the urine reveals albuminuria and cylindruria after chloroformization, the alterations which these conditions represent have no grave significance as regards the future of the kidneys, whether these are healthy or even diseased.

Has not Guyon written, "One can employ chloroform when renal lesions are evident and even when they are advanced"? Individuals who possess only one kidney can therefore be submitted to anesthetic inhalations without danger. As regards the choice between chloroform and ether, I do not know how to declare myself. In my practice of renal surgery I have always employed chloroform without having had cause to repent it. I do not know what effect rachicocainization has on the kidneys, nor do I know how to determine its value as an anesthetic in the nephrectomized, but I agree with Schwartz's researches on rachistovainization. This method of anesthesia ought to be rejected in the case of a single kidney, for after its use the urine presents the changes characteristic of nephritis: albuminuria, leucocytes, epithelia, cylindroids, etc. In a certain number of patients in whose case I have practiced rachistovainization I have for my own part rather often determined the existence of a pronounced oliguria: proof of a disturbance of the renal function.

III

NEPHRECTOMY REGARDED FROM THE POINT OF VIEW OF SOCIETY.

Medical literature is poor in documents relating to nephrectomy regarded from the social point of view. I shall use whatever material I have been able to gather, hoping that my eminent colleagues shall bring the concurrence of their experience to confirm or invalidate the opinions given and to complete the study of a question which I am only able to outline.

Marriage.

What I have previously said concerning the possibility for women deprived of one kidney to bear the burden of pregnancy and nursing does not necessarily carry as a corollary their aptitude for marriage. In my opinion, the woman who takes a husband has other duties than to supply milk and suckle her children; she still must bring them up and assure by her own existence the permanency of the conjugal hearth. Therefore, before allowing a woman who has suffered the ablation of one kidney to contract marriage, it is necessary to make sure in the first place of the anatomic and functional competency of the only organ which remains for the purification of the blood, and then to determine the nature of the affection which has conduced to the performance of nephrectomy.

If the various means put at our disposal for replying to the first question indicate that the constitutional elements of the kidney are altered and that the elimination of the products of catabolism, or of substances experimentally introduced into the economy, betray a profound physiologic disturbance, it would be wise to dissuade the woman from marriage, for fear that pregnancy, by increasing the work imposed upon the kidney, would come to destroy the balance of health. If the lesions seem minimal and the purification of the blood seems sufficient after repeated analyses, one can authorize the union, but only on condition of having proven the value of the other emunctories and particularly of the liver. It is also necessary to inquire concerning the functional state of the cardio-vascular apparatus, which plays so great a role in the mechanism of the renal circulation and consequently in its secretion.

The affection of the kidney which demanded its extirpation should, as one can readily understand, be taken largely into consideration when the physician is consulted on the subject of marriage. Between those cases in which nephrectomy had been practiced for a renal traumatism or nephroptosis and those in which this operation was performed for a malign tumor and in which cases the physician's answer is unhesitating (affirmative for the first, negative for the second), there is an entire series of affections in which his embarrassment may be great. Thus renal lithiasis — which is so often bilateral and the effect of which, even when renal concretions are absent in the remaining kidney, is felt in its anatomic elements through the intermediation of the blood which bathes it and the urine which suffuses the secretory tubules — furnishes one of these difficulties. Without daring to pass final judgment, I feel, nevertheless, that the marriage of people suffering from lithiasis may be permitted. I have previously called attention to the fact that several patients on whom I performed nephrectomy subsequently exhibited large quantities of salts in their urine. However, I have followed these patients for many years without finding any apparent change in their health. Guisy has communicated to me several cases of women nephrectomized for lithiasis who married, had several normal pregnancies, and suckled their children. I must state, however, that among these women one had two miscarriages to one child born at term, while another had one miscarriage to a child. Neither should the common suppurative affections of the kidneys, whether due to the *B. coli communis* or

to some other cause, prohibit marriage after nephrectomy, for I have seen a certain number of married women in this condition become mothers. Even suppression of a tubercular kidney is not incompatible with the marital functions. I have previously reported some examples which support this opinion. Auguste Luxardo, Giordano's assistant, cites several similar cases in a work on the surgical therapeutics of renal tuberculosis. Even though nephrectomy may not be the treatment of choice in the cases of nephritides which demand surgical intervention either because of the pain or of the hematuria which accompanies them, one may still be led to practice it. However, from an observation which Guisy has communicated to me, it appears that after extirpation of the kidney for nephritic hematuria a woman may marry without danger to herself and to the product of conception should she become pregnant.

Before leaving the section dealing with the marriage of the nephrectomized I must point out that if it is true that the gravid uterus in its development tends to efface the patency of the right ureter and to put the corresponding kidney into a morbid condition, one should (in formulating his opinion on the marriageability of a woman deprived of one kidney) attach more importance to the absence of the left kidney than to that of the right.

Military Service.

I have questioned several army physicians of my country about the fitness of a young man who has undergone nephrectomy for military service. This subject had not come up for discussion before the examining board when they were appointed, but in their opinion a subject deprived of one kidney, for one reason or another, should not be admitted into the army. Especially should voluntary enlistment be rigorously refused. When a soldier in active service, and in particular an officer, has had to undergo the extirpation of a kidney, should he be pensioned, and under what circumstances? For want of documents I cannot answer these various questions. It is evident that the nature of the disease of the affected kidney should be considered as well as the condition of the remaining kidney and that of the general health. Barring changes in the remaining kidney and in the vital organs, nephrectomy is compatible with exhausting labor, violent exercise, prolonged fatigue, and we believe that a

soldier surgically deprived of one kidney should be allowed to remain in the army. Maunoury (of Chartres) reported at the French Congress of Surgery of 1889 the case of a man who had undergone the fragmentary ablation of the left kidney, which had been lacerated by a traumatism, and who was well a year later and able to perform the extensive maneuvers demanded of a reserve. Tuffier in 1898 removed a right kidney, affected with epithelioma, from an officer who presented himself again in 1902 with a small tumor resultant from a graft in the lumbo-sacral mass; four years later, however, his general condition was perfect and the patient was fulfilling his duties of a commandant in active service. Kapsammer told me that he had nephrectomized, for renal tuberculosis, an artillery officer who subsequently continued his profession. Fourteen years ago I myself operated on a lieutenant of infantry for nephro-tuberculosis, who still belongs to the army, where he continues to fulfill the duties of his rank.

Insurance.

Even though a nephrectomized individual may live in the general conditions of life just as long as an individual possessing his two kidneys and may even fulfill such physiologic functions as pregnancy and nursing and bear severe diseases, as I have previously pointed out, the risks which such an individual offers to morbidity and mortality should be justly considered in the appreciation of his value from the point of view of insurance. In the valuation tables of the French companies which I have seen I could not find that nephrectomy figured at all, and I could not lay hands on a single contract with persons who had undergone this mutilation.

I believe, however, that an individual whose remaining kidney seems to function normally may be permitted to take out a policy, but at an advance in premium. As for the exact amount of this increase it would be desirable, in order to fix it justly, to know the average of survival after the ablation of the kidney, a problem in which we have no precise data. The nature of the affection which demanded operation must then be taken into account, as we saw to be the case in the questions of fitness for marriage and for military service.

When the remaining kidney presents anatomic lesions and functional disturbances, the increase in premium ought to be determined by that demanded of individuals who have both their

kidneys affected with the same lesions. But here I reason as a physician, and the probabilities are certain that the companies, still more anxious about the risks of their shareholders than those of their clients, will refuse to issue a contract in these conditions.

Accidents of Employment.

Traumatisms of the kidney, contusion, subcutaneous rupture, regarded from the point of view of civil responsibility and the indemnity which they involve, are carefully discussed in our medico-legal treatises, but such conditions following nephrectomy as a result of accident are generally passed over in silence or treated of only in a few lines. In foreign countries, doubtless because of the age of the social laws, the question is discussed in all its ramifications. Giordano, at the interprovincial sanitary congress of upper Italy, held at Plaisance in 1908, handled this subject in a most practical manner.

The anatomic loss of a kidney diminishes the working capacity in greater proportion than does that of an eye, for example, for if the victim of an accident resulting in enucleation of an eye cannot devote himself to certain trades demanding binocular vision (painters, paper-hangers, decorators, railroad employees, etc.) or demanding minute ocular application (lithographers, engravers, stone-setters, etc.), the victim who has had to undergo nephrectomy would not be without danger *to his life* if he devoted himself to trades exposing the kidney to traumatisms, contusions, shocks (porters, etc.), or to chronic intoxications affecting the renal parenchyma (workmen using preparations of lead, phosphorus, etc.).

In estimating the diminution in the working value of a man who has undergone the extirpation of a kidney at 50%, Giordano seems to me to be within just limits. It is essentially the same figure, 40% to 50%, which is given by G. Ollive and H. Le Meigneu in their "*Précis sur les accidents du travail*."

It goes without saying that a physician acting as an expert should always be guided in the opinion which he has to form on the indemnity to be allotted to the victim of an accident by the condition of the remaining kidney. Nephrectomy performed to remedy an accident, in a subject enjoying the integrity of both his kidneys, should involve a smaller depreciation in his working capacity than if this operation were practiced on an individual who previously had a bilateral renal affection; for example, Bright's disease.

FOUR CASES OF PROSTATIC DISEASE

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THE following four cases appear worthy of mention in that they illustrate four distinct and rare conditions occurring in the prostate gland. 1. A prostatic abscess which developed without any apparent cause; 2. Tuberculosis of the prostate of the hyperplastic type (this type appears to have been overlooked in the literature) producing symptoms of obstruction; 3. A case of calculus of the prostate demonstrating the advantages accruing from the advances made in genito-urinary diagnostic instruments during the past ten years; 4. A stricture of the internal urethral orifice following a prostatectomy.

CASE 1. The case was that of a young man aged 18 who came to the hospital complaining of frequency of micturition and pain in the region of the bladder and in the penis.

His history was as follows: Up to eight days before entering the hospital he was perfectly well. At that time he was suddenly seized with a severe pain in the region of the bladder and a desire to pass water. This was accompanied by a severe pain in the penis. From that time he had a frequent desire to urinate both by day and by night. This increased to such an extent that when he came to the hospital he had to pass water every few minutes, whilst during the last few days he would frequently try to pass water and be unable to do so. At no time did he have any urethral discharge nor did he ever pass blood.

The very aspect of the patient, his haggard, drawn appearance, coupled with his story of marked frequency of urination, seemed to leave no doubt but that he had tuberculosis of the genito-urinary tract. But on examination, instead of finding a thin, flat abdomen, I found a marked swelling in the lower portion of it, which was apparently the bladder. He was then asked to pass water, but after trying very hard to do so, found this was impossible. A No. 20 F. silk-webbed catheter was then employed in an endeavor to determine the cause of the retention. The catheter, however, passed without any difficulty into the bladder and a flow of purulent urine came through it. After partially emptying the bladder the catheter was withdrawn. Im-

mediately he was seized with intense pain at the neck of the bladder. The pain was so severe that his face was covered with perspiration and it was necessary to give morphia before any relief could be obtained.

Digital examination of the rectum was then made and a marked enlargement of the prostate found. It was slightly tender but presented no evidence of softening. He was then admitted to the ward, and during the night he was again catheterized and bloody urine withdrawn. The next day he was able to void, this being accompanied by slight pain. The frequency moderated considerably during the ensuing two or three days, and the urine gradually became quite clear. At the end of a week, however, the pain began to return, frequently requiring morphine for its relief. The prostate was again examined by rectum and was still found to be enlarged, but no evidence of softening could be made out. By means of the cystoscope the intravesical portion of the prostate was also seen to be enlarged and to be covered by edematous mucous membrane.

After considering the symptoms and the results of the examination it was decided that the condition was one of prostatic abscess. On account of the recurrence of symptoms and the persistence of the enlargement of the prostate it was decided to expose and drain it by the perineal route. When this was done it was found that there was a large collection of pus in the prostate. The cavity was then evacuated and a drainage tube inserted. The patient made an uninterrupted recovery. The bacteriological examination of the pus showed it to contain staphylococci and streptococci. No gonococci were ever found in the urine or in the urethra.

CASE 2. A man aged 30 came to the hospital with the following history: Two years previously he began to have frequency of micturition, which was hardly noticeable at any time except during the sleeping hours, when it was, however, marked. There was neither pain, nor any other symptom until two months ago, when he began to have attacks of retention as often as once a week. The frequency of urination had caused him very little inconvenience, but when he found himself unable to pass water he consulted a doctor in order to have it drawn off. At that time he began to have pain in the region of the bladder, and during the next two months this increased to a considerable extent. The condition of the prostate, as found on rectal examination,

completely misled us, as it was uniformly hard and smooth. In fact, it was so hard that it was suggested at the time that there might be a stone in it. An attempt was made to examine the bladder with the cystoscope, but this was found to be impossible on account of the enlargement of the prostate. There was one other point in the examination worth noting and that was a small nodule in the tail of the epididymis. This was about the size of a split pea and quite hard and not at all tender. It was so small that he himself had not noticed it. The only point in his personal history that was of interest was the fact that some time before he had had a tuberculous lesion in one lung. He denied all venereal history.

In view of the fact that the prostate was so uniformly large, smooth and hard it was thought that the condition could not be one of tuberculosis but probably malignant and most likely sarcomatous in nature.

Although a cure seemed to be impossible it was decided to remove as much of the gland as possible in order to relieve the suffering and render catheterization unnecessary. The bladder was therefore opened suprapubically and an attempt made to shell out the prostate. This proved exceedingly difficult because of the dense adhesions at the base. There was no breaking down of the gland, and the pieces as they came away were so hard that it seemed more and more likely that the case was malignant in nature. However, when the specimen was examined microscopically it was seen that instead of being malignant it was tuberculous. This case, then, was an example of the hyperplastic type of tuberculosis usually seen in the peritoneal cavity.

CASE 3. The patient was a man aged 47 who was sent to the hospital with the following history: Ten years ago he entered one of the city hospitals to be treated for frequency of micturition and pain in the bladder region. These symptoms had been present continuously day and night for two years. At that time it was found that he had a large quantity of pus in the urine and a large, hard prostate. It was also said that tubercle were found in the urine, but before this was known the bladder had been carefully examined by means of a stone-searcher without any results. The patient was therefore sent home with a diagnosis of tuberculosis of the bladder and prostate. The symptoms remained very much the same until three years ago, when they became somewhat aggravated and at one time he

passed a small stone. His symptoms at last became so bad that he had to seek relief at a hospital, and on admission he was found to be passing water every fifteen minutes and to be suffering a great deal of pain. The urine was found to contain a considerable amount of pus but no tubercle bacilli could be discovered. In view of the previous history of tuberculosis and the recent history of passing gravel, it was thought that probably a calculus had formed in a tuberculous bladder. In order to establish a diagnosis definitely the cystoscope was employed, and as it passed through the posterior urethra a grating sensation was imparted to it. This was attributed to particles of gravel lying in the canal. The cystoscope revealed two fair-sized stones in the bladder. As a result of the cystoscopic examination it was decided to open the bladder suprapubically and remove the stones. This was accordingly done and after two stones had been removed from the bladder cavity another one could be felt in the urethra. A pair of forceps was inserted through the internal urethral orifice and a large stone extracted from the prostate. The bladder was then drained through the suprapubic opening.

This case demonstrates two things: first, the possibility of the formation of a large stone deep in the substance of the prostate, and secondly, that a mistake such as was made ten years ago is rendered avoidable by the advances in the methods of diagnosis now at our disposal. Even if a good X-ray had not revealed the presence of a stone in the prostate, yet a cystoscopic examination would have disclosed the fact that the bladder was not the seat of tuberculosis.

CASE 4. A man aged 60, who had had his prostate removed three years ago by the suprapubic route, remained perfectly well for a year and a half and then noticed that he had to strain in order to start the stream. Six months later he was suddenly seized with retention of urine, but managed to obtain relief by taking a hot bath. From then on, his condition was the same as before the attack of retention until September 10th, 1912, when he was again seized with inability to pass water. When he applied to the hospital for relief it was found that the bladder reached as high as the umbilicus. On rectal examination a band of fibrous tissue was felt in the site from which the prostate had been taken. There was no evidence of any malignant growth. A number of types of catheters were used in an attempt to enter the bladder, but all these were of no avail. It was not until the

patient had been placed in a hot bath that a filiform could be passed. A silver catheter was then screwed on to the end of it and this metal instrument was then forced into the bladder and the urine drawn off. After the urine had been taken away the instrument was withdrawn and in a few hours he voided naturally. During the next two weeks numerous attempts made to pass various types of catheters and filiforms proved futile and rendered it necessary to open the bladder suprapubically in order to deal with the stricture. The old wound was accordingly opened and it was discovered that the internal urethral opening was a mere dimple in a fibrous tissue ring. A number 20 F. sound was passed through the penis and by means of the finger in the bladder it was determined that the sound was in line with the internal urethral orifice. Thus with the finger in the bladder as a guide the sound was forced through into the bladder. The stricture was then cut by means of a blunt pointed bistuary passed through the suprapubic opening.

It is remarkable that this complication is so rare when one considers the amount of damage done to the neck of the bladder during a suprapubic prostatectomy.

In view of the occasional occurrence of the complication I feel that a solid instrument should be passed at the end of a year after this type of operation. By this means a developing stricture would be detected and could then be dealt with by dilatation, thus avoiding the necessity of opening the bladder.

383 MOUNTAIN ST.

THE PATHOLOGICAL PHYSIOLOGY OF RENAL DECAPSULATION AND THE INDICATIONS AND CONTRAINDICATIONS FOR THE OPERATION

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ACCORDING to the pathogenic conception which inspired Edebohls with the idea of performing decapsulation of the kidney for combatting or even radically curing Bright's disease, it is to the regeneration and vigorous proliferation of the renal epithelium, thanks to its complementary sanguineous irrigation, that are due the effects observed. The establishment of this neovascularization, if such takes place, only occurs after several days. It is for this very reason that Edebohls says that the changes can only take place after some ten days, and still from the very day of the operation a result is manifest. Consequently, it must be admitted that the interference has both immediate and ulterior effects.

If we refer to actual cases, it will be seen that the first result obtained by the operation is an immediate disappearance of pain and nearly always of the hematuria; frequently there is also an increase of the diuresis. This is particularly evident when the twenty-four hour amount during the days preceding the operation was small. In other cases diuresis is diminished for the following first few days, but Claude and Balthazard have experimentally shown that in spite of this diminution the proportion of urea and salts increase, an opinion also upheld by Ceccherelli.

The operation, by the free bleeding to which it gives rise, decreases the general and local congestion and arterial tension. The freeing of pericapsular adhesions followed by decortication brings about a salutary decompression of the organ and the decrease of the intrarenal tension is not undoubtedly quite as secondary as Edebohls would have us believe. On the other hand the manipulation to which the kidney is submitted during the operation and the flow of serum following it, must also be taken into consideration. Jaboulay even attributes the changes arising in the renal circulation to stretching of the sympathetic nerve fibres contained in the pedicle, which must transform the conditions of the vasomotor innervation of the kidney. It is also for this reason that Albarran performs total decortication in order to *enervate* the kidney as completely as possible.

If the immediate effects are, so to speak, constant, the ulterior effects do not always take place. The dyspnea is, however, generally influenced favorably and quite rapidly by decortication; the edema retrocedes less quickly and more inconstantly.

The amount of albumin generally diminishes, but slowly, and infrequent are the cases, even those of Edebohls himself, where it completely and forever disappears. The same statement applies to casts. Even the heart undergoes a change from the operation and diminution of the cardiac hypertrophy has been frequently observed. I have had two cases under observation of decortication in cardio-renal subjects where the result was momentarily encouraging. The sensorial disturbances are happily influenced and in a case recorded by Duval and Claude of a patient who developed amaurosis during the progress of Bright's disease, sight was restored after decortication.

But how are we to interpret these results; why and how does the operation often produce a temporary, but evident, improvement?

As is pointed out, Edebohls believes that it is due to the neovascularization which regenerates new epithelium capable of assuring the secretory function; it is the result of the enormous supplement of blood sent to the kidney that causes, according to him, the process of proliferation. This complementary irrigation, which requires several days to become established, although it may change the circulatory conditions of the kidney and improve them, has no action on the immediate effects. It is admitted by nearly all writers that in reality the extra blood supply only exists in a precarious way, if in reality it is to be taken into consideration at all, and in no way can be of any real benefit to the kidney, because usually it is not the supply of blood that is lacking.

The disappearance of the pain is undoubtedly due to the freeing of the kidney, to rupture of perirenal adhesions, so frequently found. The fact that it is improved by other operations also, such as nephrolysis or nephrotomy, shows that it is equally because the intrarenal tension has been modified that this result is obtained, and lastly, the enervation of the kidney resulting from decortication must be taken into account.

Decortication of the kidney decreases the rapidity of the circulation in the gland, but the effect of this on the urine is counterbalanced by a greater perfection in metabolism, so that

even with a lesser diuresis, the elimination of the salts is more active. Mongour contends that by diminishing the intrarenal venous tension, decortication increases the arterial tension and favors the elimination of urine. It brings about a great diminution of the intrarenal tension because the entire renal surface is freed.

Modern studies of the pathogenesis of hematuria accompanying the various nephritides have shown that different factors are at work in its production and it is by acting upon several of the factors at once that decortication produces the resultant. As to the action of the operation on edema, Pousson explains it by a diminution of the intrarenal pressure which is the starting point of a reflex transmitted by way of the vasomotor nerves of the diseased kidney to the small vessels.

As to the ulterior effects, they are produced because the temporary lesions of the nephritides have disappeared, perhaps also the phenomena of compensation already referred to, enter into play; it is quite possible, even probable. I do not believe, however, that decortication has any influence whatsoever on the nephritic process itself and it can never cure a nephritis. It causes the accidents due to temporary renal insufficiency to disappear, which have been added to those of a permanent insufficiency and have a renal lesion for a substratum. It may momentarily arrest the nephritis in evolution by producing better circulatory conditions, but even if it favorably modifies the lesion and better still, if it could make it disappear, it could not do away with the cause. It is, however, possible that decortication favors epithelial regeneration, but up to the present time this has not been proven. All told, the action of decapsulation simply relieves the alarming phenomena of nephritis, excepting perhaps in cases of unilateral nephritis.

Renal decapsulation has been objected to on the ground that it gave rise to the formation of a capsule thicker than the first and which at a later date might necessitate another decortication, and all experimenters have found a neoformed capsule, also demonstrated by the autopsies made by Boinet and Stern. Momentarily at least, the operation will set up conditions favorable to regression of temporary lesions and places the parenchyma which has remained healthy in excellent condition for the fulfillment of its functions. The new adhesions will not be more painful because they are bound to the renal parenchyma itself, and the fact that nephrorrhaphy with decortication, as

performed by many surgeons at present, does not give rise to sclerosis and functional renal disturbances shows that the fear of compression by a neoformed capsule is exaggerated.

Stern's findings in kidneys removed at autopsy are not in accord with the ideas generally admitted. Microscopic sections of kidneys after decapsulation failed to reveal any amelioration and the interstitial changes were more marked after the operation had been done. A comparison made between pieces of kidney obtained at the operation and that of the kidney after death showed the same thing. In cases where death occurred shortly after the operation, examination was still more demonstrative as it showed that the interstitial process is very rapid and that foci of small round-cell infiltration could be found not only at the surface but still deeper, sometimes around the glomeruli, at others in the form of bands going through the cortex.

And lastly, if a large number of case histories are consulted it at once becomes evident that decapsulation is mostly only temporary in action. The hematuria, pain, dyspneic phenomena and urinary symptoms momentarily disappeared or improved; the nephritic process was arrested for a certain time. Alone, Edebohls reports numerous durable successes. It is true that some of his operations lend themselves to criticisms, and in nearly all, if not all, the analyses of the urine in the cases of Edebohls and Ferguson where a cure was declared to have lasted for four, five, six, eight and even twelve years, it is noted that there still was a little albumin, some casts and other elements indicating that a *restitutio ad integrum* of the kidneys was not absolutely perfect. In the absolute sense of the word, the operation was rather palliative than curative.

As far back as the Congress of Amsterdam, Pel and Rosenstein admitted surgical intervention in cases of acute nephritis or with acute exacerbations in which the diminution of the diuresis might create a danger and in which internal medicine was inactive. They found it legitimate when anuria was present and all medical treatment remained without result. However, one should not, under the pretext of temporizing and awaiting the result of drugs delay operation until too late.

It can be said in a general way that acute nephritis is not a surgical affection if its evolution goes on normally. But if edema persists, if the dyspnea and the phenomena of intoxication do not give way to a milk diet and other therapeutic means ordi-

narily employed; if the cardiovascular disturbances continue and if oliguria or anuria indicate that the renal permeability is not improving; if the methylene blue test shows a faulty elimination and if the leucocytosis increases in the urinary deposit (Dufour) one should decapsulate. But operation should be done only when it is assured that bleeding and diet have no influence over the impaired permeability. Profuse hematuria is also an indication for operation and in these cases, as in eclampsia, decapsulation combined with nephrotomy should be done. One thus obtains a more marked decongestion at the same time as a more efficacious drainage of the products of cell disintegration, exudates and toxins.

Which kidney should be operated on? When an hematuria is found by the cystoscope or when there is one sided pain, when there is a greater sensitiveness by pressure on one side than the other, this will be the kidney to attack. In other cases ureteral catheterization will show the degree of the disease in each kidney. The urine should be collected for two hours and 4cc. of 1:200 phloridzin solution should be injected at the start, while a polyuria can be established by giving the patient three glasses of water at the end of the first half hour. The amount of urine, urea, chlorides, sugar, albumin and casts eliminated during each half hour are to be compared and cryoscopy of each sample should be done.

The presence or absence of albumin and casts must not be relied on for judging the degree of the renal lesions. In the majority of cases albumin and casts are connected phenomena which follow each other in their variations; but albumin or casts may also appear alone, casts without albumin being infrequent, albumin without casts being common. Senator and his school even admit a physiological albuminuria absolutely independent of any appreciable permanent renal lesions. Finally, the evolution of a serious nephritis may continue without any albumin or casts appearing.

However, speaking in a general way, the information furnished by the presence of albumin and casts, the predominance of certain types of the latter, and this completed by the clinical history will permit one of knowing if the case is one of degenerative lesions or simply congestive, in a word, the anatomical evolution of the renal changes. It should be recalled, however, that such information is of value only when it substantiates that furnished by clinical evidence, such as the etiology, duration of the

pathologic process and its evolution, as well as the examination of the renal functions.

In chronic nephritis one may temporize longer. As long as the patient can follow hygienic precautions and a proper diet, principally milk, so long as frequently repeated examinations of the urine indicates a sufficient elimination of waste products the surgeon has nothing to do. But if, in spite of diet and medical treatment, the renal functions are not accomplished so well, if the cardiovascular phenomena and dyspnea do not retrocede, when renal insufficiency becomes permanently established, one is in the right in proposing renal decapsulation. Operation should not be advised too soon, so as not to remove any chance of spontaneous cure, but on the other hand it must not be postponed until the patient's conditions is too serious so that all hope is lost.

In certain types of chronic nephritis, disagreeable or disquieting symptoms may force the surgeon's hand. Persistent hematuria, continuing despite rest, coinciding with the presence of casts in the urine, with painful phenomena, are a formal indication for an early operation before the establishment of a serious anemic state.

Some surgeons advise bilateral decapsulation at one operation, stating that there is no danger. I have no personal experience in this matter, as all my patients where bilateral decortication was done were operated first on one side and then the second somewhat later. Other operators always combine nephrotomy with decapsulation but ordinarily I do not think this necessary.

The contraindications are derived from the gravity of the patient's general condition, when the slightest surgical trauma is out of the question, such as cardiac weakness, very marked atheroma, etc. Ocular lesions, such as albuminuric retinitis, are not contraindications, contrary to Suker's opinion, as has been proven clinically by Edebohls, Duval, Claude, Stern and Rosenstein.

PRINCIPLES OF HOMOSEXUALITY AND SEXUAL INVERSION IN THE FEMALE

By DOUGLAS C. M'MURTRIE, M. D., New York.

THE scientific study of sexual inversion may be considered as still in its infancy, the subject having received serious attention on the part of unprejudiced observers only during recent years. In connection with the particular features involved in the manifestation as it occurs in the female sex the neglect referred to has been even more marked. A review of the existing literature would reveal at least ninety-five per centum of the material on sexual inversion relating exclusively to its occurrence in the male. Albert Moll after completing five-sixths of his monumental book *Die konträre Sexualempfindung* without reference to women inverts gives four reasons for his apparent neglect. First, that the available material is defective; second, that some points in the homosexuality of women are analogous to corresponding points in the homosexuality of men; third, that it is not so easy for women to transgress the rules of convention and follow unhampered the dictates of their desires as a similar course is for men; and fourth, that in Germany the publicity incidental to police prosecution has not existed for feminine inversion as it has for male. In explanation of this last point I would point out that Section 175 of the German penal code has made homosexual relations between men a crime while it takes no cognizance of similar relations between women. Thus masculine inversion is often brought before the police court. I am not sure that conditions in this country would verify the validity of the same reasons as advanced by Moll but I quote them as indicative of the attitude of sexual psychologists abroad in regard to this subject.

As a matter of fact it is my belief that sexual inversion is as common among women as among men and that the social customs and practices of women tend to the encouragement of acquired inversion. The intimacy existing in many instances between women together with the caresses and kisses which are so frequent would certainly tend to awaken any latent homosexual feelings which might be dormant. The aversion the average man feels for such demonstrations would tend to inhibit the possible discovery or manifestation of inverted sexual impulses. Affectionate acquaintanceships or "crushes" are almost the rule

in boarding schools for girls; comparable phenomena are practically unknown in schools for boys.

These very considerations, however, make difficult the recognition of cases of sexual inversion among women and are perhaps responsible for the general underestimation of the incidence of the anomaly. It is often possible for a person well-informed on sexual matters to be acquainted for some time with a feminine invert without recognizing the situation. The diagnosis of the condition thus becomes quite a problem and makes important a knowledge of all the factors involved.

It may be said at the outset that it is not the purpose of the present paper to enter into any of the highly technical controversial details, but merely to give a general review of the subject in its principal phases and aspects.

HISTORY

From very early times there have been records of intense emotional relations between women but there is available in but few instances definite evidence of the character of the relationship. Probably the first feminine invert regarding whom we know fairly certainly was Sappho, the Greek poetess. This talented but unscrupulous Grecian had passionate relations with several women, mention of these loves being made in her writings. The result has been that affection of this type has taken its popular name of Lesbian love from Sappho's home city of Lesbos. Throughout the Greek and Roman communities the practice of pederasty and the gratification of other homosexual tendencies were widespread, and the moral status of women being far from high, it is reasonable to suppose that many of the women indulged in similar practices. The probability of this is heightened by the general complacency regarding homosexuality and the absence of any particular stigma attached to it.

With the general growth in the complexity of the community and state and the segregation of considerable bodies of those of one sex, as in the instance of an extensive war, there is no doubt that homosexuality flourished. This would be expected from physiological reasons and our supposition is confirmed by many allusions in classical literature.

During modern times sexual inversion has made a more pressing demand on public attention. From time to time some direct or indirect effects of homosexual passion would be brought

to light in the police court. When thus discovered the matter was generally considered both by the medical profession and the lay public as an unnatural perversion, and a function of insanity. The unfortunate subject was always treated as a depraved criminal and the resulting laws which came into being were harsh to an extreme degree.

The first scientific record of a case of homosexuality concerned inversion in a woman and was reported by Westfall in 1870 in the *Archiv für Psychiatrie*. But the succeeding students of the pathology of sex devoted their attention to homosexuality in the male. Krafft-Ebing in his pioneer work *Psychopathia Sexualis* reported cases of inversion, but most of them in men. Albert Moll, by virtue of his work *Die konträre Sexualempfindung* which I venture to consider the present authority on the subject has, as already pointed out, devoted considerable attention to the matter. The man most interested in homosexuality exclusively is Magnus Hirschfeld who some years ago started a periodical, the *Zeitschrift für sexuelle Zwischenstufen*, dealing with inversion of varying degrees. Interest has also been taken by Iwan Bloch, *Sexualleben unserer Zeit*; Auguste Forel, *La Question Sexuelle*; E. Heinrich Kisch, *Geschlechtsleben des Weibes*; Havelock Ellis, *Studies in the Psychology of Sex*, Vol. II; and others.

DEFINITION AND SYMPTOMS

Homosexuality may be defined as the sexual instinct in a person directed toward one of the same sex. The literal translation of the German term, "konträre sexualempfindung," contrary sexual feeling is illustrative in this connection. But many people have some homosexual feelings or tendencies who are not sexual invert in the true sense of the term. When the preponderance of attraction, however, is toward members of the same sex, the case can be described as one of inversion.

The most salient point to be observed regarding female inversion is the admiration for and emulation of all masculine attributes and characteristics. This results generally in the adoption of a masculine style of dress, straight coats, stiff collars, neckties, and heavy walking boots. The frills and delicate accoutrements so dear to the heart of the normal woman are rigorously tabooed. I have been told by a brilliant woman invert that she felt as uncomfortable in an evening gown as a man would and that it had been years since she had worn one.

Similarly, masculine habits of life are affected. The average inverted woman will be found almost always to smoke and often to drink after the custom of men. She will be very independent in her ways scorning the protection generally provided a woman. If of an industrious and sober turn she will very likely engage in business, if not she is liable to become a free lance, adventuress.

Being endowed with the assertive force and characteristics of the masculine, the invert will often be found to have exceptional ability, and to be doing excellent work in the community. It should be borne in mind that sexual inversion does not carry with it implication of deficient character. In this connection I would quote Havelock Ellis: "But I found in time that several persons for whom I felt respect and admiration were the congenital subjects of this abnormality. At the same time I realized that in England, more than in any other country, the law and public opinion combine to place a heavy penal burden and a severe social stigma on the manifestations of an instinct which to those persons who possess it appears natural and normal. It was clear, therefore, that the matter was in special need of elucidation and discussion."

There is one characteristic of feminine inverts which is unfortunate but which is practically universal. I refer to their restlessness and inability to stick to one occupation or remain in one environment. One will find the usual history of an invert's life one of perpetual change—of going from one thing to another. I hazard no explanation of this, but, as I have seen no mention made of this attribute and as it has been to me a matter of such frequent observation, it seems worthy of record.

It may be well to explain in passing that sexual inversion in women is also known by the terms of tribadism and sapphism.

SOCIAL RELATIONS

The congenital invert generally cannot understand her tendencies and feelings. Often she believes she is different from everyone else and that she is the only person in the world with similar feelings. Naturally she is treated by her friends as any other girl would be treated. They do not know her situation and would not understand if they were told. She is probably courted by one or more youths in the same fashion as other maidens, but she experiences no sensations of delight and in hearing romantic confidences from her girl friends she has none to tell in return.

But there is a certain effect upon her. She learns the normal ways of men and women, feels the pressure of convention and is led to imitate normal people. Often this has an unfortunate consequence in that she is led to marry where she does not love. I will recur to the marriage of a feminine invert later on.

The preceding narrative may be considered fairly typical of the early maturity of a congenital female invert after adolescence. During this time she will probably have tended toward masculine occupations and attributes—she may have played baseball; worked in the carpenter shop. But she has also probably experienced violent attachments for girls of her acquaintances, lavishing on them such attentions and favors as might be bestowed by a male suitor. But I think in the majority of cases these early relationships remain spiritual rather than physical.

To digress for a moment, it may be mentioned that there is great diversity of opinion regarding the manifestations of inversion prior to adolescence. Sex is largely undifferentiated in childhood and it is reasonable to suppose that anomalies of sex would be also undeveloped. The matter is complicated by the change of attitude of children regarding those of the opposite sex and the fact that this change takes place at different ages. For instance at a certain age it is normal for a girl to shun the company of boys, this being due not to any latent homosexuality but to the natural diffidence of youth. On the other hand a departure from this rule may be accounted for by the early existence of erotic stimulation in the company of the opposite sex. It is true that homosexual women often point to boyish traits in their childhood as forerunners of their later characteristics but these may be accounted for either by persistence of memory due to personal emphasis or by change of environment. It will often be found that these traits were actually counterbalanced by a greater number of others pointing in exactly the opposite direction. I am also acquainted with dozens of cases where girls who were tom-boys to an aggravated degree during their childhood have grown up into highly feminine and romantic women.

A great deal of inversion is, however, congenital. I am aware that some recent investigators have tended to regard homosexuality as never congenital but always an acquired manifestation and in regard to this I would quote Moll's opinion. "In cases in which the existence of homosexuality can be traced back to childhood, they explain this on the ground that at a time

when the individual concerned was in a state of sexual excitement, some other person of the same sex must have made a marked impression upon his imagination. In this way, they suggest, is effected an association which endures throughout life. I will here say no more than this, that the association theory does not suffice to account for the facts."

On the whole it is my opinion that few valid deductions regarding sexual inversion can in the present state of our knowledge safely be drawn from attributes or behavior in childhood.

To return to the consideration of the young woman with inverted tendencies. Her first experiences in a physical way have in the cases under my observation come in three different ways. The first of these is through initiation by another woman herself already initiated. One woman relates that her first experience was a revolutionary one, inducting her into the most extreme practices. The second method is through increasing intimacy beginning with simple caresses, supplemented perhaps by two girls sleeping together, and leading up spontaneously to the acme of sexually inverted gratification. The third method is by reading about inverts, their feelings and practices. I have no doubt that Belot's well-known novel *Mademoiselle Giraud, ma Femme*, had a wide effect of this character in France.

Once initiated the inverted woman learns to know her kind and also learns to exert her charms on normal women not inverted. She very often meets another woman similarly inclined, an infatuation springs up, and a *liaison* is formed, the pair generally living together. This is often a happy normal domestic relation unknown in its character to the closest friends and relatives of the persons concerned. The love between the two is as intense in its passion as that between man and wife. Generally the two swear eternal allegiance to one another and go through some form of marriage ceremony. In daily life both parties experience the same jealousies and disagreements as occur in normal wedlock.

When such *liaisons* are broken up through the desertion or infidelity of one party the passion of the other is liable to result in crime—even murder. It is of singular interest that the annals of such crimes show the United States with an exceptionally large number recorded.

Later, in discussing comparative sexuality, I will refer to the means of coquetry and courtship.

The marriage of inverted women to men has already been spoken of. In one instance I know of, marriage to a man occurred early and took place through the allegiance of the woman to the conventional. Coitus from time to time was successful from the standpoint of the man though the wife never experienced the least gratification. Two conceptions were the outcome of this marriage but both children were stillborn. The relation was subsequently broken up. In another instance a man was attracted by a woman known and self-acknowledged to be completely inverted. He practically "dared" her to marry him saying he did not believe her capable of coitus. She promptly accepted him, allowed the desired intercourse and later there was born a child who lived but a few hours. I know of many inverted women who are married to men but in most instances wedlock is a formality only and there is no offspring. In only one case do I know of a living and healthy child and in this instance the mother is not inverted to an extreme degree.

The marriage of inverted women to men lead to many interesting situations. For instance I know of an inverted woman and an inverted man, the latter a military officer, who are married. One night every week the husband goes out to stay with a male friend while the wife entertains another woman at her home. The whole arrangement is with mutual satisfaction and consent. Another woman, thoroughly inverted, was nevertheless attractive to men, several of whom wished to marry her. She practically gambled to see which one she would accept and having married him and had him make a certain settlement upon her, she declined to allow him to live with her at all.

MECHANICS OF INVERSION

It is necessary to describe the means through which feminine inverts obtain their sexual satisfaction. In brief the method is one of mutual masturbation. At first this is generally manual, one woman manipulating the genitalia of the other. This soon, however, changes to oral manipulation, this latter being technically known as *cunnilingus*. The activity of the one leads to the excitation of the other, culminating in the orgasm. The process is directly comparable to the successive phenomena of contraction and detumescence in normal heterosexual intercourse. When women indulge in this practice they do it with the greatest frequency. I know of two young women who in boarding-school had such relations an average of three times a

night for a long period. Often when first initiated to the practice they are insatiable, not being subject to the same restrictions as men.

This anomaly of sex is also subject to attendant anomalies, being often involved, for instance, with sadistic and masochistic tendencies. The inverted practices, filling as they do so much of the life of some women, give rise easily to erotic symbolism. I recall one case of a handkerchief fetich between a Lesbian pair. When apart both would place handkerchiefs in proximity to their genitalia and would then exchange them by mail.

VARIETIES OF INVERSION

Inversion may be roughly classified as temporary, congenital, and acquired, though I would qualify these distinctions as tentative and based upon our present knowledge. Temporary inversion generally occurs among adolescent girls. They experience the dawn of the sex impulse and under ordinary circumstances have no outside means of gratifying their natural desires. The impulse therefore turns to another girl *faute de mieux*. In this connection a statement to me by a woman dealing continuously with young girls is illuminating. "Most of the girls have learned to masturbate through one means or another. Often they sleep with one another. What more natural than that two such girls should by chance attempt mutual masturbation?" And here we have a homosexual relation. In most instances, however, this relation is only temporary. One or the other comes under the influence of a man, the romantic attachment for a girl is ended, and the whole affair is over. Generally no harm is done; the only danger is that such an experience might awaken latent homosexual tendencies which would otherwise remain undiscovered, and the influence thus becomes permanent. A contributory factor to the incidence of such cases is the frequency of "crushes" or "raves" so common to girls' schools and colleges. These undoubtedly bear some relation to the phenomena of temporary homosexuality but cannot be discussed in detail here.

The second type is congenital inversion—a condition where the sexual differentiation seems to have been organically incomplete. Although the characteristics may not be manifested during childhood as has already been shown, they are sure to appear later on. Such a person is not largely subject to the influence of environment, but the sexual impulse turns as surely and nat-

urally to woman as does the impulse of the normal woman turn to man.

There is also a type of inversion known as acquired. I do not believe that it is ever acquired by those who are not pre-disposed to it—who have not already in them a considerable taint of the homosexual. The metamorphosis of an intensely feminine and well-sexed woman into an invert does not seem possible, nor is there any evidence to support such a belief. Where inversion is acquired it is the result either of an environment which inhibits free social intercourse with those of the opposite sex, or of intentional seduction by another woman. I do not regard as true inversion the homosexual practices which grow up between even intensely female women in prisons and other places where they are immured for long periods. The human soul must have intimate companionship and the urge of sex must be obeyed. Such phenomena as have been referred to cannot be regarded as pathological of the individual but as enormities of society.

COMPARATIVE SEXUALITY

It has been my contention that some of the most important facts regarding sexual inversion could never be gathered from clinical data regarding isolated individuals but must be gained by a study of two complementary individuals. When we begin to consider the relations of Lesbian couples we find that the sexuality of the two individuals is comparative. In practically every instance one will be the more masculine and will play the male part. This one will take the active part of courtship before relations are established; this one will take the attitude of caring for and protecting the other. In courtship flowers will be sent, attentions extended by the suitor. And later from a physiological standpoint my experience has shown that the more masculine partner will play the active rôle in the sexual relations and will derive her satisfaction from the gratification of the other.

The sexuality of women inverts is comparative in various degrees. One who will feel in the male relation to one woman will be forced into the female relation by another more extreme invert. The most decided inverts will be found to assume the male attitude toward practically all of their companions. Occasionally, however, such a woman will meet another still more masculine than herself, and she is forced much against her will

to play a woman's part. I recall the case of one woman about as masculine as one could conceive, who, having gone to live with a new acquaintance, found she must reverse her usual attitude. She was astounded at the situation but had to consent.

But a still more interesting point is that the comparative sexuality of the two members of a pair may shift, due to outside influence on either or both. I will relate a typical instance of this. A and B had been living together on intimate terms for several years. A had always taken the masculine attitude practically as well as sexually; B had always taken the feminine rôle. They parted for a time, however, and during this period B became infatuated with a young woman, C, of fairly feminine tendencies. B played the masculine part through a vigorous and successful courtship and established a *liaison* with C. Upon returning later to A, however, it was found that the attitude of B was now the more masculine and the relative positions of the two shifted diametrically. From this time on B played the active and A the passive part.

It was my original intention to continue and discuss the relation of inversion in women to the community and society as a whole. This is, however, a subject in itself and it seems best to omit its consideration here. I would venture to suggest, however, that the matter, both as regards justice to the sexually inverted and the protection of society in a sane manner, is in need of careful and scientific attention.

SEXUAL IMPOTENCY IN THE MALE

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AUTHORIZED TRANSLATION. EDITED WITH NOTES AND ADDITIONS BY
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[Continued from the February issue.]

CHAPTER XI—PRIAPISM FROM CAUSES IN THE CENTRAL NERVOUS SYSTEM

IT was first shown by experimental physiology that erections occurred in laboratory animals on stimulation of certain cerebral regions, namely the peduncles and the pons variolii (Eckhard), or of the spinal cord, or finally by stimulation of the nervi erigentes arising from the second and third sacral nerves.

cord, which affect the genital sphere.

We should also mention here the surprising discoveries and experimental results of E. Müller, who considers the sympathetic pelvic plexus to be the main seat of the erection center, and ascribes to the spinal cord only a subordinate position in this connection.

According to Hird the occurrence of priapism is as a rule dependent upon a central disease of the cerebellum or spinal cord. The cases of priapism occurring after injury of the spinal cord or vertebral column are best known.

Mere shock of the medulla (commotio medullæ) without anatomically demonstrable lesion of the substance of the spinal cord led in a case described by B. Beck to lasting priapism.

This patient had a paralysis of the sensory and motor nerves up to the level of the sixth intercostal space; the penis was in a state of erection, of course without being felt, however; and not as a result of an active irritative process, such as a special excitation of the erection center, but as a sign of the paralysis. One could repeatedly demonstrate that, when the penis was properly supported in the dorsal position, its swelling gradually diminished, but as soon as the patient was put in a lateral or a prone position the corpora cavernosa and spongiosum at once filled tensely with blood. The anatomical

investigation in this case revealed no pathologic changes in the spinal cord.

In a case described by Féré, priapism occurred in an epileptic as the equivalent of the usual attack, and was quickly relieved by a larger dose of potassium bromide. The priapism in this case was probably occasioned by a paralysis, proceeding from the cerebral cortex, of the inhibitory center situated in the cerebrum.

To this class belongs that priapism which has occasionally been noticed in men who have been hanged and also often continues after death. Its cause lies in the anatomical lesion or circulatory disturbances in the spinal cord, perhaps also in the intoxication of the blood with carbonic acid.

Priapism has been observed in fractures and dislocations of the spine, which compress the spinal cord, in traumatic myelitis, in hemorrhage into the substance of the spinal cord (hematomyelia) and as an early symptom of tabes dorsalis.

Rosenthal reports a case of priapism resulting from spinal hemorrhage in commencing tabes.

It is well known that the erection center lies in the lumbar portion of the cord, and injuries affecting the cord above the lumbar enlargement very regularly cause priapism; injuries to the cervical portion are especially liable to have this effect. (Thornburn, Leyden, Goldscheider.)

In fractures of the vertebrae priapism is as a rule brought about by transmission of the shock or inflammatory irritation to the erection center in the lumbar cord, but also by interruption of the cerebral inhibitory paths for erection. Post-mortem priapism is due to a vasomotor stimulation and persistent venous hyperæmia of the corpora cavernosa.

The apparently increased sexual power and desire, which is really a lasting erection due to the central irritation, seen in commencing tabes is among the early signs that are frequently observed.

Margonhe describes a case of priapism due to cerebro-spinal syphilis (cited by Lohnstein). This case is worth mentioning because of the fact that the patient repeatedly per-

formed coitus successfully during the priapism, but without any orgasm. Later the capacity for erection disappeared completely, while ejaculation remained normal, a proof that the centers for erection and ejaculation are separate.

But priapism can also be brought about by nerve influence without an organic affection of the central nervous apparatus. Here belongs that still far too little known group of *functional priapism* resulting from a peculiar neurosis, which was treated thoroughly by Peyer and later by Raichline.

We have also repeatedly observed such cases. Let the following clinical history serve as a type:

CHRONIC NOCTURNAL PRIAPISM. *Chronic prostatitis. Sexual neurosis.*

Anton R., postmaster, 34 years old, 1905. Family history negative. Given to masturbation from the 15th to the 17th years of life, but not excessively; later suffered frequent pollutions, weakening the patient. Married at the age of 26, and had an undisturbed sexual life. His troubles began two years ago. A drop of cloudy fluid often appears at the urethral orifice after a stool.

The patient awakes every night about 2 A. M. with a strong, painful erection, which usually lasts until he arises in the morning. The patient always feels very weak on awaking, and thinks his weakness comes from the seminal loss, for he always finds after such an erection a few drops of a glassy, tenacious fluid hanging to the urethral orifice (urethrorrhea ex libidine). These erections also occur when he has had coitus even several times before going to sleep. They are indeed always felt much worse after coitus. No sexual desire exists during these nocturnal attacks of priapism. If he nevertheless performs coitus during such a priapism it either does not lead to ejaculation or the ejaculation quiets the erection for only a short time.

The patient complains of general nervousness and weakens as well as marked emaciation for two years and constipation. He was never infected with gonorrhea or syphilis.

The physical examination of the somewhat pale but fairly well nourished man shows a completely normal condition of his internal organs.

The urological examination, however, shows a marked hyperesthesia of the mucous membrane of the entire urethra, especially in its prostatic portion. The prostate is also extremely painful on pressure but normal in shape. Pressure empties a catarrhal prostatic secretion.

The nervous state is completely negative.

Improvement of the condition occurred under treatment of the patient's chronic prostatitis with massage and instillations of silver nitrate, but as soon as the treatment was omitted for any length of time, all the patient's troubles relapsed.

The case here described belongs in that group for which Raichline has proposed the name *chronic nocturnal priapism*, which was formerly denoted amatory priapism (*priapismus amatorius*, Darwin).

This functional nervous form of priapism may be quite acute and temporary or chronic and relapsing.

The temporary states of sexual excitement observed in the insane accompanied by permanent erection belong here. *Intellectual exertion may also result in priapism in neurasthenics.* Peyer observed an officer, who suffered from priapism after strenuous night work. Matthieu describes the clinical history of a neurasthenic, who was attacked by painful priapism lasting for two months without apparent cause.

The statement of Manassein, quoted by Raichline, is very singular, that extremely painful priapism suddenly occurred in an entire regiment of soldiers, which was only removed by the general administration of powerful cathartics.

We should also put in this class of functional cases of priapism a patient demonstrated by Lang in the year 1896 in the Imperial Royal Medical Society of Vienna, who had suffered for many years with priapism. The 40-year old man is an alcoholic, and shows signs of a general neurosis (tremor, etc.). He was occupied a large part of his life, since his 18th year, in riding horseback, but the permanent erection existed already before that time.

The case reckoned by Goebel among his cases of idiopathic priapism, which was reported by Mainzer, also belongs according to our opinion to the group under discussion. The patient, who is 42 years of age, has suffered regularly for four years at Christmas time from nocturnal attacks of priapism, lasting from ten to fifteen days; two years ago an attack lasted continuously for two days and nights. The last attack ended with a spontaneous cure after nine days' duration. This patient shows many signs of a general neurosis (tremor of the hands, paresthesiæ, and neuralgia). Moreover he is an alcoholic. According to Mainzer's opinion we have in this patient, who is condemned to sexual abstinence by social considerations, a sexual over-stimulation, "a summation of stimuli up to tonicity, then loss of excitability, recovery, and normal condition again."

Such cases are wrongly termed "amatory priapism" (priapismus amatorius); it was supposed that they develop after sexual excesses.

Now as a matter of fact we rarely find sexual abuse in the clinical history of these patients, and can refer the origin of this neurosis to quite other causes.

These causes may be peripheral or central in location. Inflammatory conditions in the urethra and its glands, for example gonorrhea, or in our case a non-gonorrheal prostatitis with hyperesthesia of the whole urethra, likewise congestive states in the urinary organs, as we usually have in hypertrophy of the prostate, moreover functional or organic states of irritation in the spinal erection center may lead to this peculiar manifestation of the neurosis. We may call attention incidentally to the striking similarity to other neuroses of the sympathetic, which the clinical picture shows in some cases of this kind. And we can well imagine, that chronic nocturnal priapism occurs as a local symptom of such neurosis temporarily or permanently by involvement of the mesenteric and pelvic plexuses of the sympathetic.

There is a condition of sexual excitement in the *preataxic stage of tabes dorsalis*, which is characterized by erections of long duration during the night without sexual desire ("erec-

tions à froid"). This differs in no respect from the neurosis we are considering.

"This priapism appears mostly at night in sleep, when the inhibitory center for erection is put out of function by sleep. According to the severity of the case the patient awakes at two or three o'clock in the morning with a violent and indeed often painful erection, which produces absolutely no voluptuous sensations or sexual ideas. After he has lain awake some time the erection disappears, but when he has slept again for several hours, he is again awakened by the same phenomenon. If the cases are more severe, the erection does not disappear on awaking, but the man must get out of bed, apply cold compresses, and walk about for hours in his room until the priapism finally leaves him. In some few cases a water-clear, viscid secretion flows continuously from the urethra, coming from Cowper's glands (urethrorrhea ex libidine). In the worst cases the priapism appears after only an hour of sleep, and is accompanied by severe neuralic pains in various parts of the body, such as the calves, the knuckles, soles, arms, etc. Impotence is not rarely associated with this form of priapism, especially when the latter has arisen through masturbation. And when the patient attempts coitus, with the physician's advice, the erection fails completely, only to appear again later in a tormenting way when he is alone." (Peyer.)

During the attack micturition is somewhat hindered, as is the case also in normal erection, and the erection does not pass away until the urine has nevertheless been voided. If coitus is performed during such a priapism, either ejaculation does not ensue or the completed coitus does not end the erection; in the case above described for instance erection returned in an increased degree only a short time after coitus. Erection in this form of priapism may also be confined to the corpora cavernosa.

REVIEW OF CURRENT UROLOGIC LITERATURE

FOLIA UROLOGICA

Vol. VII, No. 4, Nov., 1912.

1. Is the Demonstration of Tubercle Bacilli in Urine Obtained by Ureteral Catheterization Sufficient Evidence for a Diagnosis of Kidney Tuberculosis? By Dr. Kielleuthner. P. 191.
 2. The Clinical Significance of the Estimation of the Colloidal Nitrogen in the Urine (after the Method of Salkowski and Kojo) for the Diagnosis of Carcinoma of the Internal Organs. By W. P. Semenow. P. 213.
 3. Pyonephrosis Tuberculosa Occlusa. By A. W. Smirnow. P. 229.
- 1. Tubercle Bacilli in Catheterized Urine and Kidney Tuberculosis.**

Kielleuthner claims that tuberculous bacilluria may occur (rarely) in the course of a pulmonary tuberculosis without there being any specific focus in the urinary system. In such cases an albuminuria, no matter how slight, is also always present. In other words the presence of tubercle bacilli and the demonstration of albumen in the urine obtained from one kidney is not sufficient evidence to establish the existence of a true renal tuberculosis and should never lead in itself to the removal of a kidney.

Microscopic examination alone is not sufficient to establish the presence of tubercle bacilli; only animal inoculation is conclusive.

In order to establish without question a surgical tuberculosis of the kidney we must have the well known symptomatic trio: tubercle bacilli, pus cells, red blood cells—the classical signs of a destructive process. In a case of clear-cut unilateral renal tuberculosis even if the urine from the *opposite* kidney should prove “positive” by animal inoculation and should contain albumen, as long as it does not show pus or erythrocytes we should not hesitate to remove the *first* kidney, for it has been shown that the albuminuria and bacteriuria from the remaining kidney will disappear after the operation.

Finally we must not be led to believe that we have a renal tuberculosis when we meet with a kidney enlarged by compensation, the urine from which contains bacilli and albumen, the latter factors being brought on simply by palpation of the organ.

2. Colloidal Nitrogen and the Diagnosis of Carcinoma.

Semenow has determined the Salkowski-Kojo coefficient, i.e., the percentage ratio between the colloidal nitrogen and the total nitrogen in the urine, in 6 normal cases, in 15 cases of carcinoma, and in 45 cases of patients suffering from other diseases. He concludes as follows:

1. The Salkowski-Kojo coefficient is always low in health. Maximum—1.79.
2. In carcinoma of the internal organs the colloidal nitrogen is always increased.
3. Similarly an increase of the colloidal coefficient occurs in other diseases (acute appendicitis, acute endocarditis, diabetes mellitus and tuberculosis).

4. The increase of colloidal nitrogen in the urine is therefore not specific of tuberculosis.

5. When the Salkowski-Kojo coefficient is almost normal (anywhere up to 1.79) the existence of a carcinoma can be excluded.

3. Pyonephrosis Tuberculosa Occlusa.

This affection is of interest not only because of its great rarity but of the special difficulty in establishing the diagnosis. Pyonephrosis tuberculosa occlusa develops as a result of obliteration of the lumen of the pelvis and the ureter at any point in the course of the latter, but more frequently at its origin from the pelvis or at the termination in the bladder. According to the point of obliteration the pathological and clinical pictures vary.

In this condition the perirenal and periureteral connective tissue may be also affected whether the infection comes directly from the kidney from a rupture of the pyonephrotic sac, or by propagation along the lymphatics. A cold abscess may form along the psoas muscles thus resembling a tuberculosis of the spine.

Pyonephrosis tuberculosa occlusa may present any of the following forms:

1. The bladder is tuberculous. In the region of the supposedly diseased kidney there is a large tumor—the pyonephrotic sac. The ureter on the same side is closed off. The diagnosis is easy.

2. The bladder is normal. One of the ureters is impermeable. On the same side there is a tumor in the region of the kidney. The diagnosis can be made by considering the history and the symptoms attributable to other organs.

3. The bladder is extensively involved in a tuberculous process. Cystoscopy is impossible. The kidney is enlarged on palpation. Diagnosis is possible only after exploratory incision; for it may be that the enlarged kidney is healthy and only hypertrophied, while the other is atrophic and the seat of a pyonephrosis.

In 25 cases of pyonephrosis tuberculosa occlusa observed by the author an ante operative diagnosis was made in but 6 or 7. In this condition operative interference is urgent. Cases left to themselves develop a tuberculosis of the other kidney.

The occlusion of the affected kidney in this disease, may be regarded, in a way, as an autonephrectomy, but should never be looked upon as a complete cure.

ANNALES DES MALADIES VÉNÉRIENNES

Vol. VII, No. 12, December, 1912

1. Hereditary Syphilis and Little's Disease. By Drs. L. Babonneix and L. Tixier.
2. The Use of Balsamics in Gonorrhea. By N. Ribollet.
3. The Antigen in the Wassermann Reaction (Third Note). By A. Desmoulière.

1. Hereditary Syphilis and Little's Disease.

From a study of eighty cases (ten personal) the authors feel that hereditary syphilis is a very strong factor in the causation of Little's disease. They present their evidence on which this opinion is based, as follows:

1. *Etiological*.—Hereditary syphilis in the first or second generation, frequently figures in the history of these cases. The case of Amicis shows an actual cause and effect relationship between syphilis and the disease under discussion.

2. *Clinical*.—This is both presumptive and positive. Among presumptive facts we have the following: Little's disease is seen especially among premature infants; in some cases syphilis in the parents is highly probable from the history (numerous abortions, still-births, early death of several children); some of the children present signs suspicious of syphilis (convergent strabismus, hydrocephalus). Positive evidence is adducted by the fact that certain of the cases under discussion show indisputable luetic stigmata (Hutchinson's teeth, exostoses, cicatrices and adhesions of palate and uvula; osteitis of various bones, especially at the base of the nose, pigmentary retinitis, etc.)

3. *Anatomical*.—Specific lesions have been found at autopsy in some of the cases: *e. g.*, cerebral endarteritis, transverse meningomyelitis.

4. *Biologic*.—The Wasserman reaction is fairly often positive in children suffering from congenital spasmodic rigidity.

5. *Therapeutic*.—Mercurial treatment sometimes gives very good results in these cases.

Pathologically, hereditary syphilis may be regarded as a condition which may end in Little's disease if the nervous lesions involve the pyramidal tracts. In this case either hemorrhage or sclerosis may be the factors at work. If the latter is mild in degree we have the so-called *agenesis* of writers.

Finally in some of the case histories we find an association of hereditary syphilis with difficult labor at term. In such cases it seems clear that the observed meningo-encephalitic hemorrhages which explain the ultimate development of Little's disease are due to both of the above pathogenic factors, the syphilis playing the rôle of preparatory or predisposing cause, and the obstetric traumatisms acting as occasional or determining factors.

2. The Use of Balsamics in Gonorrhea.

Ribollet emphasizes the fact that the proper time for the administration of balsamics is not at the beginning or at the height of a gonorrhea but at the very end of the discharge when the latter has become mucous in character and contains absolutely no gonococci. If such drugs are given before this state they may dry up the discharge while they are being taken but the condition is sure to recur just as soon as the drugs are stopped. Moreover the author feels confident that

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more than one case of systemic gonorrhea (arthritis), to say nothing of stricture and prostatitis has been started by this incorrect use of the drugs in question.

Balsamics are in no true sense bactericidal. They simply change the urethral environment, so to speak and rapidly dry up a discharge. For this reason they should never be given as long as gonococci are present in the deeper layers. The organisms should always first be eliminated by diuretics and by copious injections and (later) irrigations.

There are practically but two conditions in which balsamics are indicated during the active microbic stage of the disease. In both cases however, their use should not be extended over a period of from 6 to 8 days on the average, that is, just as long as the indications exist, but no longer. The first instance is where symptoms of posterior urethritis or beginning cystitis supervenes. In this case the appearance of frequent painful micturition, occasionally a little hematuria, should put us on our guard and suggest the use of copaiba or santal or turpentine, etc. The second condition in which balsamics are indicated early is where urination is excruciatingly painful. Here instant relief may be afforded by the use of these drugs for a few days.

Once balsamics are indicated they should be given in full therapeutic doses, preferably in divided doses. Thus copaiba can be given in from 5 to 12 grams daily in the form of capsules each containing 0.3 to 0.5 centigram. Untoward effects, such as gastrointestinal disturbances and skin eruptions may supervene. Cubeb is often given with copaiba. It is a common ingredient of electuaries. Two to three grains may be given each day in 4 to 6 doses (wafers). Santal is less likely to cause gastro-intestinal inconvenience than the above but is not so effective and may give rise to severe renal colic. Eight to ten grains may be given daily, in capsules of 0.5 centigram each. Of the other balsamics such as arrhéol, gonosan, eumictine, gomenol, etc., etc., 8 to 10 capsules constitute the average daily dose.

Finally, it should be borne in mind that the use of these drugs should not be discontinued suddenly. They should be given in diminishing doses, when their indications are over, just as we prefer to prolong the use of salicylates in rheumatism in smaller and smaller doses over a considerable period of time.

3. The Antigen in the Wassermann Reaction (Third Note).

Desmoulière has tried out an isomer of the cholesterin he has previously been using. In this test he used dextrorotary ischolesterin and found it far inferior in delicacy (in the preparation of antigen) to the pure levorotary cholesterin originally recommended.

In a previous note he mentioned that he had tried an antigen made with pig liver which proved to be less sensitive than that made from the

liver of a syphilitic fetus. He has since found that the pig liver used above was too fresh and that a certain amount of autolysis increase the delicacy of the reaction.

He has also prepared antigen from two normal human livers, one from a child, the other from an adult, neither of the subjects syphilitic, the livers were removed 48 hours post mortem. These antigens (prepared of course by the author's method) proved entirely satisfactory, thus demonstrating that it is not essential to have a syphilitic fetus to carry out a successful Wassermann procedure.

The author will continue his investigations into the nature of syphilitic antigen and his attempts at the preparation of an entirely artificial substance.

MISCELLANEOUS ABSTRACTS

Simple Solitary Ulcer of the Bladder.

Simple solitary ulcer of the bladder is a rare affection. Two cases described by Dr. Leo Buerger (*J. A. M. A.*, Feb. 8), however, would seem to indicate that this condition is not infrequently overlooked because of its location in the posterior vesical wall, a region that is frequently neglected or poorly examined in a routine inspection of the bladder. Both patients had been previously examined with the cystoscope, but the cause of the most striking symptom, hematuria, had not been discovered.

R. Le Fur and A. Siredey have pointed out that the conception of simple ulcer as acquired from a consideration of the pathology of ulcer of the stomach may be extended to lesions of the bladder. They believe that the following types of ulcer of the bladder exist: chronic ulcer, acute perforating ulcer and hemorrhagic changes of the mucous membranes. It has been frequently contended that the interior of the bladder is not comparable to the mucous membrane of the stomach and intestines, and is therefore not liable to the same type of infection. In their experimental studies, however, Le Fur and Siredey have shown that this is not the case. They believe that the mucous membrane of the bladder has an eliminative function and that it is not infrequently the site of simple ulceration. The chronic lesions appear as round indurated ulcers comparable to the round ulcer of the stomach and intestine, as gangrenous ulcerations, or as simple erosions or surface defects.

The acute perforating ulcers are usually situated in the posterior wall near the summit. Although their development may be slow, they may at any time give rise to acute perforation and hemorrhage. Latency, hematuria and perforation, therefore, are the characteristics of this type of ulcer.

The third variety of ulcer, simple trophic ulcer, may be grouped

under three divisions: (1) those dependent on lesions of the nervous system; (2) those resulting from local processes in the bladder, and (3) those following lesions and operations in the neighborhood of the bladder.

Dr. Buerger's conclusions from an analysis of his own cases are:

"1. A careful search should be made in all cases of vesical hematuria for the presence of a simple solitary ulcer.

2. Bleeding ulcers may be overlooked if we fail to bring every portion of the superior and posterior walls of the bladder into view.

3. The most striking symptom, in the cases under observation, was hematuria, persisting for more than two years in one of the patients.

4. In the treatment of this condition (as well as in the treatment of tuberculous ulcer after nephrectomy), the fulguration method should be tried, and, if this fails, mercurial injections should be given in cases of simple ulcer of the *superficial* variety. More recent clinical investigations have shown that there is a type of simple ulcer of the bladder which may be termed *chronic* and *callous*. *Such ulcers should be excised* with my punch-forceps through the operating cystoscope."

Clinical Experience with Santyl.

Dr. J. Josephson, Berlin (Medico 1912, No. 9.) has used santyl in gonorrhea of the male from the very first day of treatment. For the first 4 or 5 days or longer local treatment was not resorted to, so as to determine the value of the drug and avoid a posterior urethritis or cystitis by unskilled manipulation. As a result of the medication, the inflammatory symptoms subsided, the secretion became less, and the urine cleared up while subjectively the itching and burning in the urethra, the frequent desire to urinate and the painful erections were favorably influenced.

The majority of cases only suffered from an anterior urethritis. Santyl was also employed in four cases of posterior urethritis and the effects here were likewise satisfactory. The subjective symptoms improved as before, the second portion of the urine cleared up rapidly, and the swelling of the tissues soon subsided.

A neurasthenic with cured gonorrhea complained of a variety of abnormal sensations in the urethra. Santyl here also had an excellent effect.

Urethral Calculi.

Britneff saw (Rev. Clin. d' Urologic, Sept., 1912) 27 cases of urethral calculi at the Smolensk Hospital, Russia, between the years 1900 and 1909. According to his experience such cases make up 0.82% of all affections of the urinary organs, 0.29% of all affections of the genito-urinary organs, and 0.03% of all hospital cases.

In this series only 2 calculi originated primarily in the urethra.

In both cases the stones were composed only of phosphates — the presence of other salts indicates a secondary nature — and both stones were situated in a congenital diverticulum of the urethra. In one case a paraurethral canal was present.

All the cases occurred in males. One resulted fatally from the formation of urinary abscesses and the author therefore recommends early intervention in all cases.

Rupture of the Kidney in Children.

C. L. Gibson (*N. Y. State Jour.*, June, 1912), reports subcutaneous rupture of the kidney in four children.

Nephrectomy was performed in all of the cases with complete recovery. The lesions were the same in all cases, there being vertical lacerations through the lower two-thirds of the organ. Gibson therefore suggests that this may be a definite line of least resistance. The symptoms were mild. The susceptibility of children to this injury may be due to the persistence of infantile ptosis, to the minimum deposit of perinephric fat and greater tension of the overlying peritoneum.

Although the presence of an injury to the kidney is not as a rule difficult to diagnosticate the extent of the lesion is hard to estimate. Here secondary manifestations are valuable. Exploration is advised in doubtful cases.

The author regards the following types of cases suitable for expectant treatment: (1) The milder forms of injury; (2) the cases in which there is reason to believe that both kidneys have been injured; and (3) cases in which there are injuries to other parts of the body of such grave character as to make futile any operative treatment of the renal lesion.

Cases demanding operative treatment are grouped as follows:— (1) those showing signs of progressive hemorrhage; (2) those with persistent hematuria; (3) those with anuria which continues for more than 36 or 48 hours; and (4) cases in which there is evidence of intra- or peri-renal suppuration, or of peritoneal infection.

The Staining of *Spirocheta Pallida*.

TRIBONDEAU (*Bull. de la Soc. Franç. de Derm. et Syph.*, November, 1912) says there are three desiderata for the successful staining of the organism: (1) The material should be obtained from the infiltrated tissues around the chancre and not from its surface where other micro-organisms abound. (2) All substances which are stainable with silver nitrate, such as, for example, hemoglobin, should be eliminated as far as possible. (3) The method of fixation and impregnation with silver should be as energetic as possible as the *Treponema* stains with difficulty. Three solutions which can be kept in stock for months

are requisite—a fixative, a mordant, and a silver nitrate solution. (a) The fixative consists of:

Formalin, 40 per cent.....	2 grams
Pure acetic acid	1 gram
Distilled water	100 grams

(b) The mordant is:

Tannic acid	5 grams
Distilled water	100 “

(c) And the silver solution, made alkaline by Fontana's method—that is:

AgNO ₃	1 gram
Aq. destill.	20 grams

To 15 c.cm. of this solution add ammonia drop by drop until the precipitate produced completely disappears. To the alkaline solution thus obtained the remaining 5 c.cm. of AgNO₃ are gradually added until the solution remains slightly opaque after shaking. This solution (c) keeps active and constant for several months.

Technique: (1) The syphilitic material obtained after drying of chancre with cotton-wool and scarification of the edges till slight bleeding occurs is spread on a slide in the ordinary way and dried in air or the incubator at 37° C. It must not be fixed by heat. (2) Fixation and dehaemoglobinization are achieved by irrigation for one minute with the fixative (a), and the action is perfected by a few drops of absolute alcohol, which are allowed to dry on the inclined slide. (3) The mordant (b) is allowed to act over a flame till just steaming for thirty seconds. (4) Wash in tap water thirty seconds. (5) Pour off excess of water, and without drying add the ammoniated silver solution, which must be allowed to act over a flame as in (3) for thirty seconds. (6) Wash in distilled water and dry on blotting paper. It will be seen that the time occupied by these manœuvres does not exceed five minutes. The films should have a yellowish tint when finished. They should not be mounted in balsam or left for long under cedar-wood oil or xylol, or the stain will fade. The *Treponema* is easily seen, especially where it overlies the red blood corpuscles. The *Sp. refringens* and *balanitidis* are distinguished by their darker tint and morphological characters. It is claimed for the method that it is easy, certain, and rapid, that dried specimens can be examined with success even a year later, and that it requires no special skill or expensive apparatus.

A New Urinary Antiseptic.

Dr. Eugene Remete (*Pester Med. Chir. Presse*, 1912, No. 11) says that amphotropin reduces abnormal micturition in subacute and chronic conditions, increases diuresis, particularly in pyelitis and pyelonephritis, removes sloughing epithelium, increases urinary acid reaction, has a solvent action on uric acid and kills species of bacteria against which other urinary disinfectants are helpless.

BOOK REVIEWS.

THE CARE OF THE SKIN AND HAIR. By William Allen Pusey, A.M., M.D., Professor of Dermatology in the University of Illinois. Pp. 182. D. Appleton & Co., New York.

A popular treatise on the skin and its commoner disorders from the standpoint of what every intelligent layman should know of these subjects. The author's aim has been to write a book chiefly on the hygiene of the skin, not one on the self-treatment of skin diseases.

THE TREATMENT OF DISEASES OF THE SKIN. By W. Knowsley Sibley, M.A., M.D., B.C., Camb.; M. R. C. P., Lond.; M. R. C. S., Physician to St. Mary's Hospital For Diseases of the Skin, London. Pp. 280. Longmans, Green & Co., New York.

This short treatise is intended to be a handy reference book for the use of dermatologists, general practitioners, and students desirous of ascertaining the treatments most commonly adopted for the ordinary, and some of the rarer, forms of diseases of the skin met with in the temperate zone.

GLYCOSURIA AND ALLIED CONDITIONS. By P. J. Cammidge, M. D. Pp. 467, \$4.50. Longmans, Green & Co., New York.

This important and comprehensive work, which is not merely a summary of the literature but presents the conclusions of pioneer research, approaches the problem primarily from a chemical standpoint, leading from this to its pathology, symptomatology, diagnosis and treatment. The author first deals with the tests, differentiation, and quantitative estimation of the reducing substances met with in the urine, prefacing this by a summary of the chemistry and physiology of the carbohydrates and their derivatives. The experimental production of glycosuria in animals then receives attention, and the relation of the ductless glands, and particularly the pancreas, to glycosuria is dealt with at considerable length. The author outlines his dietetic system, not only as regards the carbohydrates but also in respect to the proteins and fats, to suit the requirements of each type of case. As much information as possible is given in regard to the carbohydrates other than Dextrose met with in the urine of diabetics. Valuable bibliographies are appended to each chapter. The author's researches extend over a long period of time and are based on a clinical experience as extensive as have been his chemical investigations.

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THE PATHOLOGY AND DIAGNOSIS OF MALIGNANT DISEASE OF THE DESCENDED AND UNDESCENDED TESTICLE

BY GEORGE M. SCARIBARI, M.D., Athens, Greece.

ALL genitourinary surgeons will be confronted with cases where a diagnosis of malignant disease of an undescended testicle in the inguinal canal is required, and since this problem frequently presents some difficulty, the discussion of this question may not be out of place. Then, too, as the pathology of malignant disease of the testicle in the scrotum is not clear, I propose to endeavor to throw some little light on the subject.

At the commencement of the affection, and this applies to both the descended and undescended testicle, when there is only some discomfort or more or less marked pain, without any evident enlargement of the organ, no formal diagnosis can be made, but the wise practitioner will keep the patient under strict observation until enlightened by more distinct evidence. But when the period of full development is reached, when a tumor is present, there is still the question of differential diagnosis before concluding in favor of malignancy.

A careful examination of the region in which the tumor is located is the first step. One should ascertain if the testicle corresponding to the tumor is descended into the scrotum, and to do this a detailed exploration must be undertaken, because the presence in the scrotum of the cord and epididymis, with the testicle itself in the inguinal canal, is an evident cause of mistake.

The history will show that there has always been a little

enlargement at the point where the tumor now exists, which when pressed upon has always given rise to the special testicular sensation, and when this fact has been elicited it should not be lost sight of, because it is a most important diagnostic element.

Usually, the first question that occurs to the mind is whether or not the inguinal tumefaction is not a hernia, and it will often be difficult to eliminate this possibility, because a hernia not infrequently accompanies an undescended testicle. A careful examination of the region where the tumor is situated must first require attention and the scrotum should be palpated to ascertain if the testicles are contained within it. This exploration must be carefully carried out, because the presence of the cord and epididymis in the scrotum, while the testicle itself is in the inguinal canal, might be the cause of a diagnostic error. The patient must be carefully questioned and it will be learned that at the site of the tumor there has always been a little lump which, when pressed upon, gave the characteristic sensitiveness of the testicle. The ectopia of the testicle having been recognized, the fact should not be lost sight of because it will aid to the correct diagnosis.

One of the first possibilities that comes to one's mind is that the lesion is a hernia and this hypothesis is difficult to eliminate, for frequently a testicle in inguinal ectopia is accompanied by a hernia. If there is only a hernia it is a simple matter to make the diagnosis by causing the patient to cough, which will make the rupture protrude while the fingers can feel the impulse. Then by taxis it may be reduced. On the other hand, if there is both a hernia and an ectopic testicle, the same tests will cause a variation in the size of the tumor which remains more or less large while the reduction of the hernia allows one to examine the gland to better advantage and to appreciate its shape, size and consistency. But should the hernia be irreducible, much difficulty will be encountered, resulting in a diagnostic error. Thus in one case, a diagnosis of right-sided irreducible inguino-interstitial hernia was made, when in reality the case was a carcinomatous testicle combined with a hernia.

However, if the diagnosis of hernia can be eliminated a tubercular abscess pointing in the inguinal canal might be considered, for in this case the tumor is fluctuating and dull on percussion, but fluctuation would be more distinct and cannot be compared with that met with in certain areas of a malignant testicular neoplasm. Then, too, a tubercular abscess is rarely

met with around the inguinal canal, but should any doubt exist the vertebrae should be examined and other signs of Pott's disease looked for.

In lymphadenomata of the glands of the groin more than one lymphnode will be involved and the site is not the same, a lymphadenoma being seated below Poupart's ligament. A fibroid of the abdominal wall or a growth from the pelvic bones must be considered. The latter possibility is quickly eliminated when the tumor is found to have no bony connection, but the case of a fibroid tumor demands close attention. This type of tumor is well known and is frequently seated in the lower abdominal wall and is attached by a pedicle of varying length to Poupart's ligament or to the anterosuperior iliac crest. It will be found just below Poupart's ligament and, like a malignant testicle in ectopia, it is oval and hard. These characters may momentarily complicate the diagnosis, but by a closer examination of the tumor characteristic signs will be discovered. It is movable when the abdominal muscles are relaxed and becomes fixed when they are contracted, and lastly, these fibroid tumors are almost never met with in the male.

These various affections having been eliminated, the field of investigation becomes more restricted. The attention should then be directed to the vagino-peritoneal canal, the spermatic cord and the ectopic testicle. An hydrocele of the vagino-peritoneal canal will be soft, reducible, transparent, absolutely indolent, without lymphatic involvement or any change in the general health.

The diagnosis of an hematocele may give rise to some difficulty and to a certain extent it may simulate an ectopic testicle. It may be very hard to the touch and puncture may not enlighten the surgeon so that one must fall back upon the clinical history of the case, the evolution of the tumor, the pain and general symptoms in order to make a correct diagnosis.

Lipomata, fibromata, sacromata and myxosarcomata never develop from the walls of the vagino-peritoneal canal, although they do occur in the vaginalis. Varicocele of the cord is readily diagnosticated because by pressure the veins are emptied and the tumor reduced in size; it is irregular and uneven in shape while to the touch it feels like a bunch of twine. An hydrocele of the cord is a soft tumor, indolent, fluctuating, elongated in shape and distinctly separated by a furrow from the testicle. The absence of a furrow separating a tumor from the testicle elim-

inates the hypothesis of a cyst of the cord or a lipoma or fibroid. These growths are uncommon, but in the case of sarcoma the testicle may also be involved in the growth so that the difficulty of the diagnosis can be readily understood. Therefore, one should ascertain from the patient the exact spot at which the disease commenced, although too much reliance must not be placed in the statements made.

The only organ there now remains to be examined is the testicle. A spermatocele cyst of the testicle or of the epididymis can be readily eliminated. These affections have a slow revolution, are indolent and never reach any very great size. A simple chronic orchitis does not affect the general health of the patient, while the pain to which it gives rise is not sharp and the size of the gland never reaches that encountered in malignant disease.

Tubercular orchitis is accompanied by evidences of the process elsewhere in the organs of generation or kidney. The size of the gland cannot be compared to that of one with malignant disease. Then again, tuberculosis of the testicle is very uncommon, usually being secondary to that of the epididymis. I know of no case of syphilis of an ectopic testicle ever having been reported, so that this diagnosis will never be made.

Next as to the neoplasms of the testicle. The evolution of the growth, its size and consistency, the presence of a concomitant hydrocele and pain, all go to confirm the presence of a tumor of the gland. Neoplasms of the seminal gland are numerous and varied: carcinoma, sarcoma, cystic disease, dermoid cysts, enchondroma, myoma, myxoma, fibroma, osteoma, all these have been encountered. Myxoma, myoma, osteoma and fibroma may be eliminated on account of their infrequency. Osteoma, particularly, is a rare autopsy finding in testicles which are not ectopic.

These various types of malignant neoplasms result most frequently in only an approximative differential diagnosis which is frequently corrected by microscopical examination, hardly to be attempted excepting in the case of three of these affections, namely, cystic disease, enchondroma and lymphadenoma. Cystic disease may be suspected if one is dealing with a tumor which is manifestly testicular in nature, of a regularly oval shape, with slow development, no involvement of the lumbar lymphnodes, offering to the exploring fingers a special depressibility and occasionally small resistant nodules on the albuginea which do not

give the soft feel characteristic of degenerated areas of carcinoma.

An enchondroma may be, perhaps, diagnosticated by the peculiar hardness of the cartilaginous portions, which contrast with the softness of the areas which have become cystic. A lymphadenoma is recognized by these two important characters which are, so to speak, pathognomonic, namely, bilaterality and generalization, the existence of multiple foci of adenitis, splenomegalia and other visceral localizations.

It should be pointed out, however, that the symptoms of these different tumors are often confused, which fact leads the clinician into error. For example, in one case a diagnosis of cancer was made when in reality the case was one of lymphadenoma, which gave no characteristic sign. Consequently, if consideration is made of the lack of precision of the symptomatic characters it is safe to make a diagnosis of cancer of the testicle or malignant sarcocele but nothing further.

The inability to clinically differentiate between these growths of the testicle results from a tendency to classify seminal neoplasms like tumors in general according to their development in the glandular structure of the organ or in the connective tissue. Thus we have: (1) epitheliomata of the testicle (tumors of the epithelial type); (2) connective tissue tumors in which different anatomical elements are mixed; cartilaginous tissue in enchondroma, embryonal cells in sarcoma, mucous tissue in myxoma, stripped and unstripped muscular fibres in myoma.

If this classification be adopted the clinical problem remains insoluble, because the confusion of the symptoms prevents making distinctly determined a clinical type corresponding to each tumor in particular.

But in reality too much importance should not be attributed to these two groups of tumors. In the testicle the conditions are far from being so simple; the neoplasms of this gland do not offer that invariable typical aspect in each case that is presented in other organs. Thus, in a given case of chondroma of the seminal gland the cartilaginous, myxomatous and sarcomatous tissue is mixed in such proportion that it is impossible to place the neoplasm in any precise category. This means that tumors of the testicle should be regarded differently, that they should be looked upon as mixed tumors, from which is derived the principle not to make any histologic diagnosis of a testicular

neoplasm until after a careful microscopic examination. In some instances, the surgeon may believe that he is dealing with a lymphadenoma or a sarcoma, when in reality the case is one of epithelioma.

For example, Virchow considered sarcoma as an extremely rare tumor, although it had passed for years as the commonest in the testicle. In reality the majority of cases of these pretended sarcomata are simply carcinomata with connective tissue trabeculae filled with young round cells. In the same way, for Malassez, the larger number of cases of cystic disease of the testicle are analogous to ovarian cysts; that is to say, epitheliomatous. And lastly, according to Pilliet, an accumulation of small round cells takes place in the interstices of the cells of the lamellated sheath of the seminiferous tubules, which transforms the walls of the latter into a true reticulated tissue and causes a diagnosis of lymphadenoma to be made, when in reality it is a seminiferous epithelioma.

Consequently, cancerous sarcocele, the cancer of clinicians, is always present in the same anatomical form which is epithelial carcinoma — epithelioma. All assumption that there exists a pure connective tissue tumor of the testicle should be discarded; the tumors designated under the name of sarcoma and chondroma are simply mixed growths in which the intensive development of the connective tissue, under various forms, has obscured the presence of the epithelial element.

There now remains to be considered the elements composing the complex tumors with multiple tissues: the epithelial element and the connective tissue element. As regards the former it does not appear to be the result of epithelial proliferation of the seminiferous tubules. The initial focus is Highmore's body and here is to be found the original epithelial element and this is how the process can be explained. At the level of Highmore's body takes place the union of the two component parts of the seminal gland: (1) The spermatic ampullae of the testicle, or Pflüger's male tubules; (2) The Wolffian portion (epididymis, efferent cones and Highmore's body) whose terminal canals come into continuity with Pflüger's male tubules, the seminiferous tubules. If it be admitted with Pilliet and Costes that the two portions may present anomalies in their conjunction, that there may be an excess of seminiferous tubules and a defective conjunction of the Wolffian canals, what becomes of these useless elements? They may atrophy, but later on they may also proliferate and

give rise to two different varieties of epithelioma. The tumor will be a seminiferous carcinoma if it develops from Pflüger's tubules (ampulla spermatica); it will be a Wolffian epithelioma if, on the contrary, it is derived from the Wolffian canals. And thirdly, it will be an ovular epithelioma if it takes its origin in the female ova which are found up to puberty in the hilum of the testicle and in the seminiferous tubules.

Like the epithelial elements, the connective tissue elements also have their origin from the evolution of fetal life and we have said that they affect quite special multiple differentiations. We are thus forced to conclude that tumors of the testicle are true embryomata in the same way that ovarian tumors are. For this same reason, Munch applies the term of tridermic tumors to these neoplasms, that is to say, growths having their origin in the development of the three embryonal layers. According to this authority, these tumors take on two forms, the first of which is where the embryo is enclosed in a cystic cavity, the second where the embryo develops as a true compact tumor. Wilms gives the name of embryoma to the former type; to the second that of embryoïd tumor.

Absolutely similar from the histogenic viewpoint, comprising the same elements, they differ from each other only by the distribution and arrangement of these elements. In the first, the representatives of the various layers are arranged in perfect order following their usual place with, however, distinct predominance of the epithelial elements; in the second, on the contrary, this order is broken and there is a mixture of tissues and organs with predominance of the mesodermic elements and according to the importance of the proliferation of the latter and the variety of forms that they present, the different types of mixed neoplasms are produced.

However this may be, the embryoma and the embryoïd tumor are simply an aborted embryo whose pathogenesis can be explained in three different ways. The first theory is that of blastodermic inclusion, which is simply a generalization of the theory of cutaneous inclusion. The second is that of diplogenesis, a theory which explains the origin of tridermic tumors: the ovum being fecundated by several spermatazoa. From this results several spheres of segmentation, one of which, undergoing normal evolution, produces a complete embryo; the others, on the contrary, presenting a defective evolution, only give the portions of the embryo which unite to the normal being. According to

the theory of parthenogenesis, the tumor is derived from the asexual production, without preliminary fecundation, of a new being born in the sexual gland of an adult individual. Therefore, according to Pilliet, these tumors should be connected to the only cell of the living being which is capable of producing all the different tissues; in other words, the ovum. Thus one has been forced to admit that just as in the female a certain number of Pflüger's male tubules persist (medullary cords of Waldeyer), just so by a more or less persisting hermaphroditism, the hilum of the testicle contains female ova which under normal circumstances atrophy, but which pathologically can give rise to tardy phenomena of parthenogenesis; that is to say, segmentation without fecundation.

From what has been said, it would seem that the histogenesis upholds clinical findings and explains the uncertainty and mistakes of diagnosis. The uncertainty and errors may be attributed to the fact that an attempt is made to make the multiple clinical aspects of a tumor, invariable in its essence, correspond to just as many distinctly isolated anatomical types, with a special denomination, when it simply deals with characteristic entities, but having more or less abundant manifestations of one or the other constituent elements of a tumor which is always the same. Consequently it can be said that there is no purely epithelial or connective tissue tumor of the testicle, but mixed growth with an epithelial or connective tissue predominance, and still always identical from the viewpoint of their origin.

Perhaps the term of cancer or malignant sarcocele should be retained. The very vagueness of this denomination may avoid many surprises from the clinical standpoint as well as that of the anatomical, as far as the importance of either element is concerned, while still implying the idea of malignancy, which is commonly present in the evolution of these neoplasms.

THE TECHNIQUE AND RESULTS OF LATERAL (PARAPERITONEAL) NEPHRECTOMY

By ANDRÉ MÉDOT, M.D., Paris, France.

THE new technique of nephrectomy which I shall describe is based on seventeen operations performed by Prof. Chevassu and by whose kindness I am allowed the material for the present paper. Lateral nephrectomy is better than the anterior transperitoneal route because the peritoneum remains intact and it gives much light on the field of operation. It is easier to push the entire peritoneal sac towards the median line than pushing aside the intestinal mass by the anterior route. Then again, excepting in very large renal tumors the kidney is quite distant from the anterior surface of the abdomen and the operation is carried out much deeper down than by the lateral method.

It is, in my opinion, better than the lumbar route because it freely exposes the anterior aspect of the kidney and the pedicle by means of a long retractor inserted under the ribs so that one can see the diaphragmatic dome. Thus *under guidance of the eye*, all necessary manipulations can be carried out on the internal border of the kidney and particularly its pedicle. Freeing of the kidney can be accomplished under the control of the eye, thus often avoiding rupturing a pus pocket.

What can be said against this method? In the first place the considerable separation of the peritoneum, but in practice no unfortunate results have occurred and in reality it is not peeled off much more than by the lumbar route. As to the danger of opening the peritoneum, this certainly can occur, but a few sutures close the opening and in several of our cases where this did happen no ill results accrued.

The most important objection to this technique is postoperative hernia, but this occurs after both the abdominal and lumbar operations. Let us consider the causes of postoperative hernia. In the first place we have suppuration of the wound, which can be avoided. After this comes insufficiency of the sutures. Now in all the operations referred to in this paper the muscles were carefully sutured in two layers, the first including the small oblique and transversalis, the second the great oblique. Interrupted sutures with large catgut were employed, which gives the greatest security for future solidity of the cicatrix.

And lastly, one of the chief causes of postoperative hernia

is section of the nerves. In this operation, section of one of the most important nerves in the innervation of the abdominal wall is bound to happen, namely, the eleventh intercostal. Some fine branches of the twelfth are also cut, but they are of far less importance. As to the tenth intercostal, it will be seen in the description of the technique that it is easy to avoid.

In our patients it was easy to prove by electrical tests that there was a mild paresis of the abdominal muscles, while clinically this was made evident by a slight weakness. Of eighteen of our patients recently seen, eight presented a perfect cicatrix, the others presenting a slight impulse on coughing. One was seen two months previously with a slight postoperative hernia, but when examined later it appeared that the cicatrix had become much more solid.

To sum up, it appears to me that this minor postoperative complication of the lateral route should not place its advantages in the background. (1) Over the lumbar route it has the advantage of giving much more light, facilitates the peeling out of the kidney without trauma and above all one can freely expose the pedicle and deal with it. (2) Over the abdominal route it has the advantage of freely exposing the operative field without opening the peritoneum and thus it complies with all the requirements of modern surgery which leaves nothing to luck and resorts to no maneuver without clearly seeing what is being done.

I will now consider the results obtained in the seventeen cases where this technique was resorted to. One patient with renal lithiasis died several hours after the operation, but it should be pointed out that the patient was very weak. For a long time he had suffered and demanded an operation. Ureteral catheterization showed that the left kidney was distinctly inferior to the right, which itself was not very good. But as the patient persisted in having an operation, an exploratory operation, to be followed by nephrectomy, was decided upon. Hardly had the operation commenced when the patient began to breathe poorly and the pulse became filiform, so that anesthesia had to be discontinued. As the left kidney was in very bad condition functionally, fearing the length of time necessary for hemostasis of an nephrotomy, it was decided to remove the organ, which was readily done because the kidney could be easily peeled out. The chloroform was then stopped but the patient had already absorbed too much and he died a few hours later without regaining consciousness.

In the two other fatal cases, one was dealing with renal tuberculosis. One patient died at the end of two weeks from uremia. He had undergone two anesthetics within a short interval. Autopsy showed a bend in the ureter on the healthy side and a nephritis certainly due to the chloroform. The second patient died sixteen days later from acute pulmonary tuberculosis. I would add that in both these patients the cicatrix was perfect.

There now remain fourteen cases of lateral nephrectomy. One for cancer of the kidney, which is particularly important because it demonstrates that by this technique one can resort to most delicate manipulations of the pedicle. In this case the renal vein was filled with the neoplasm and it was possible to cut the pedicle without clamping it (which might have detached the clot), compress the aorta, clamp the renal artery, remove the thrombosed vein with the neoplastic clot, and lastly resect the wall of the vessel up to the aorta. All this was easily done under the guidance of the eye. The patient rapidly recovered and the wound healed by first intention.

A case of uronephrosis was discharged at the end of one month; another for pyonephrosis healed *per primam*. Four cases of pyonephrosis (2 lithiasis, 2 tuberculosis); one is still under treatment, the others recovered rapidly. Seven cases of renal tuberculosis, which up to the present have usually been operated on by the lumbar route.

I will simply compare the results obtained by the lateral route and those obtained by the lumbar method, which will, I think, dispense with all discussion.

I have collected 143 cases of renal tuberculosis treated by lumbar nephrectomy; 31 cases by Albarran (in Lorenzo's thesis), 11 cases from Herdelberg's clinic, 68 cases operated by Raffin (Pagès' thesis) and 33 cases from Neckar Hospital (Guillon's thesis). Of these 143 cases, 8 recovered in less than one month; 10 between one and two months; 18 between two and three months; 31 between three and six months; 26 between six months and a year; 6 took more than a year to recover and 44 developed fistula.

Of my seven cases of renal tuberculosis operated on by lateral nephrectomy, I find one case of union by first intention. Two months later a ureteral fistula developed in the cicatrix which was operated on and the patient recovered with union by first intention.

In three cases cicatrization was complete in less than a

month, in two between one and two months, and lastly, one patient is still under treatment.

Operative technique. The patient rests on the back, slightly inclined on the healthy side. In order to hold him in this position, the lower limb of the healthy side is flexed to a right angle, while that on the side to be operated on is kept straight. A sand-bag is put under the patient and should not touch the iliac crest, but it must force the lower part of the thorax upwards. The anterior aspect of the thorax is thus pushed forwards, the anterior portion of the diaphragmatic dome looks forwards and upwards so that it can easily be inspected by the eye, and all necessary manipulations are under the control of the sight.

The incision starts at a point where the axillary line crosses the base of the thorax, that is to say from the lower border of the tenth rib and in front of the eleventh. It is carried obliquely downwards and forwards to the antero-superior iliac spine, a good finger's breadth in front of the latter.

This incision suffices in the majority of cases and the kidney may even be removed through a smaller incision. In one case the incision was only ten centimetres long. But in some well-developed subjects the internal border of the great oblique is with difficulty held aside or in certain difficult cases where a large field of operation is required. Under these circumstances it is necessary to free the internal border of the great oblique and this is accomplished without interfering with the ultimate solidity of the wall, by cutting the great oblique on the *anterior* aspect of the thorax by an incision carried perpendicularly to the upper end of the first incision.

The great oblique is consequently exposed parallel to its fibres, and these are split in the entire length of the incision. If any difficulty is feared, one may at once make a little prethoracic freeing which, relaxing the tense abdominal muscles, allows one to obtain considerable exposure of the renal region.

The great oblique divided reveals the muscular layer formed by the small oblique and transversalis, whose fibres perpendicular to the line of incision retract as soon as section is made and consequently will not interfere with the retractor. The small oblique is very thick, the transversalis very thin. It should be cut with precaution, otherwise the underlying parietal peritoneum would be injured. Therefore, it is prudent to cut the muscular mass at the median part of the incision until the peritoneum is reached and then introduce the index finger through the little

button-hole so as to detach the peritoneum. The remainder of the muscular layer is then incised with scissors, guided by the finger, which directly protects the peritoneum.

The many vessels cut in the parietal incision are ligated at once.

The incision is without danger to any organ; the eleventh intercostal nerve alone is cut. The tenth will be avoided if the muscular incision stops a little below the lower border of the tenth rib, while the twelfth will also be avoided if the lower end of the incision is kept a good inch away from the antero-superior iliac crest.

As soon as the peritoneum has been exposed it is easy to detach it from the wall and then passing the hand between it and the muscles the kidney is soon reached, it being felt in the upper part of the wound. A large retractor is then placed on the peritoneal sac which it readily pushes inwardly.

The fatty capsule of the kidney is next opened and in order to be sure not to wound the peritoneum the kidney should be peeled off as far as possible and its capsule should be picked up with forceps very far back and the incision made close to them.

The fibrous capsule is incised on the external border of the kidney and is enlarged above and below. The kidney is freed on its anterior aspect and this anterior aspect will be freely exposed by two retractors, one of which pulls inwardly giving a view as far as the median line, the other should be plunged above, under the ribs and thus exposes the upper renal pole.

The part played by these retractors is a capital one. By their proper use the entire kidney appears in sight, allowing the surgeon to inspect the organ and its pedicle, detect adhesions if present, and decide upon the necessary manipulations. Besides the many cases in which the kidney can be easily peeled out, there are others where the organ is surrounded by a more or less thick and dense tissue resulting from a perinephritis, binding it to the surrounding structures. The considerable exposure of the field given by this incision permits one of methodically peeling out the kidney, to find the line of cleavage and to attack the organ at the most accessible point. Thus one avoids all blind efforts which result in rupture of pus pockets, and the renal gland can be carved out, so to speak, in its stratum of perinephritis without opening its capsule by means of a sub-capsular nephrectomy. The vena cava is also easily avoided.

Generally speaking, when there are not too many adhesions,

detachment is easy by attacking the kidney on its anterior aspect, then the posterior, and terminating at the poles.

When freeing the lower pole the ureter, lying against the spine, should be looked for and isolated and then cut between two strong ligatures with the thermocautery.

If the pedicle is supple, without perinephritis, nothing is easier than its isolation, likewise the artery and vein are tied off, when the kidney falls out without the slightest traction on it.

If the pedicle is isolated with difficulty, this can finally be accomplished if one can see well into the wound. The broad retractors used give a large view of the operative field and one proceeds gently with the knife layer by layer to the level of the internal border of the kidney. It may happen, however, that after having gone through the first layer, particularly dense and homogeneous, one will come upon a tissue less resistant, permitting an easy isolation of the pedicle. In other cases the tissue is dense throughout so that under these circumstances the dissection must be continued from in front backwards under the control of the eye. When the vessels are to be cut, nothing is easier than to clamp them.

In none of our cases was it necessary to leave a clamp on the vessels and subcapsular nephrectomy has never been required.

After any form of nephrectomy, it is prudent to drain, because the surface of the renal detachment bleeds quite freely for a few hours and it is advantageous to allow the blood and serum an exit. The drainage should be obtained at the lowest possible point and in lateral nephrectomy this is accomplished by a large drain inserted through a button-hole made for it, outside of the sacrolumbar mass. The drain is large calibre and short, just reaching the interior of the cavity, and is completely independent of the incision. The drainage takes place from behind while the operative wound lies just over the cavity. Thus are realized good conditions for drainage and primary union.

When the drain has been inserted the retractor holding back the peritoneal sac is withdrawn, when the latter will fall back in place and fill the cavity produced by the removal of the kidney.

The importance of the sutures is great because upon them depends the solidity of the walls. A muscular suture in two layers is always used, the first uniting the small oblique and transversalis whose internal border retracts quite far inwardly and it is important to search for it in totality with great care. The second layer comprises the great oblique. The sutures are of

large catgut, interrupted and placed fairly near together. Total closure of the skin incision completes the operation.

If there is little blood on the dressings the drain is removed in forty-eight hours or three days. Usually it is wiser to keep up drainage a little longer by inserting a smaller tube which is removed on the fifth day. The patient may be allowed to get up in three weeks.

FOR THE AMERICAN JOURNAL OF UROLOGY

THE PRIME IMPORTANCE OF THE LAWS OF HYGIENE IN SYPHILIS *

By L. Brocq, M. D.

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AT this somewhat transitional period when the treatment of syphilis seems to be undergoing renovation from top to bottom, it appears to me to be an opportune moment to impress upon practitioners what our teachers and clinical observation long since taught us. There is nothing scientifically novel in what is to follow, everything I have to say has passed into the domain of "old saws," but in presence of the, often, disconcerting innovations of the new school and the dangerous illusions which certain publications have fostered among the public it may be well from time to time to bring these "old saws" once again to the front.

I

The doctors first duty when called upon to treat a patient with syphilis is to endeavor to abort the disease. This has ever been the object at which syphilographers have aimed. It was with this object in view that, for years, excision of the chancre has been recommended as soon as the diagnosis is established; it was for this purpose that, following in the footsteps of certain teachers of the past, as soon as the nature of the disease was recognized we have constantly advised the institution of ultra-intensive treatment by the intramuscular or intravenous injection of soluble mercurial salts, continuing them as long as the organism can tolerate them. Then too we recommend excision of the chancre or local injections round about its base either with mercurial solutions prepared by Dr. Lenglet's method or with the arsenical preparations as employed by Dr. Hallopeau. Of

* From *Le Monde Médical*.

late, in common with other observers, we have convinced ourselves of the really remarkable efficacy of salvarsan in the early stages of syphilitic infection and it is our practice to advise syphilitics who present only the chancre without any secondary symptoms to submit, with every conceivable precaution, to intravenous injections of salvarsan in order to try to abort the disease (see my paper read before the Dermatological Society of Paris in November 1911).

I consider therefore that it is incumbent upon us to try this abortive treatment every time we are confronted by a patient who does not as yet display any signs of constitutional infection.

II

When however the organism is completely infected, when the accidents to which we apply the term "secondary" have developed, it is no longer reasonable to expect to cut short the disease by antisyphilitic medication and this being so the patient's habits of life ought, in my opinion, to be the subject of the doctor's first care.

My words however must not be misinterpreted. I must not be understood to assert that we are not to treat syphilis by means of drugs reputed to be antisyphilitic; mercury, iodide of potassium, arsenic and its derivatives, down to and inclusive of salvarsan which, for the time being, seems to be the most active of them all. On the contrary, I advise the employment of these various agents judiciously and in conformity with the indications derived from close scrutiny of the "case," selecting and applying them in the manner best adapted to the individual patient. But I maintain the importance of the two following propositions which appear to me to be of primary importance.

1. *That when the syphilitic infection has become constitutional it should not be fought by too intensive mercurial or arsenical treatment.*

2. *That hygiene plays as important a part as mercury and arsenic in the treatment of confirmed syphilis.*

The administration of antisyphilitic remedies during the so-called secondary stage must not be carried out blindly and systematically. Infections and morbid and medicinal susceptibilities of the human organism are not to be solved by equations.

We must take into consideration the choice of our therapeutical agents to begin with and then their mode of application,

the doses, and, finally, the lapse of time during which they are to be given. (a) the age, sex and weight of the subject; (b) his general health and resistance; (c) the state of his organs; (d) the lesions which he presents. In any case we must not exceed the limits of his therapeutic tolerance for we must always take care to suspend in good time the series of treatments which he is required to go through. We must not forget that we are handling ultra-toxic substances capable *per se* of determining the gravest mischief in the various organs, more particularly in the domain of the nervous system.

I believe that at the present time we are far too apt to overlook these fundamental principles judging from the innumerable works which unceasingly make their appearance on the treatment of syphilis, works in which each syphilographer gives "his" formula, bolstered up of course by the most impressive "statistics."

3. *For this reason I hold that we ought to bring to bear all the rules of hygiene in order to reduce to a minimum the effects of the syphilis and in that way to allow of our administering a minimum of the so-called specific substances.*

III

It may be asked whether hygiene *per se* is really capable of playing such an important part in syphilis but after all that has been written on the subject by eminent authorities can any doubt remain as to this?

Take a robust subject whose organs are all healthy and who has just contracted syphilis. If he attends carefully to his body, if he every morning washes his feet, genitals, armpits, etc., if he cleanses the mouth morning and evening as well as after every meal, if he abstains from smoking and takes no alcohol, if he avoids excesses of every kind, if he works in moderation, if he be fortunate enough to have a calling which does not entail worry, if he leads a regular life, going to bed early and getting up after eight hours in bed, and provided his food be of good quality, suitable for the requirements of the organism and his habits of life, then he will stand a good chance that the syphilis *even if untreated* will run its course without causing much trouble though all this must not be taken to signify, as already mentioned, that he is not to undergo treatment. Along with the chancre there may be some indolent adenopathy and a little roseola which even

escapes notice and this may be all. In less favorable cases, in three or four months he may get some papular spots on the limbs or a few patches of circinate or other form of psoriasis which may spontaneously disappear after a lapse of time. In some instances there will be syphilitic alopecia in patches which will not fail to attract the attention of any experienced practitioner. Sometimes too he may suffer from headache, he may become more or less anaemic and suffer from general malaise. All this however, as I have already pointed out, will slowly subside and such a patient may run through an attack of syphilis without so much as suspecting its existence, in any event he will not require strong courses of mercury or arsenic to cause these trifling accidents to disappear.

Obviously the disease does not always run this mild course. There are cases which, in spite of the strictest hygiene, we get cutaneous or visceral manifestations of syphilis of a vastly more troublesome kind, obstinate headache, painful attacks of iritis, papulous or papulo-squamous or even papulo-sabby, eruptions on the body and face. But, I repeat, the comparatively serious and refractory manifestations of secondary syphilis are most frequently met with in persons who do not observe the rules of hygiene.

Let us consider for a moment the salient differences observed in the course of syphilis as between well-to-do women and women of the lower walks of life. In the well-to-do who take care of themselves the accidents we meet with are limited to roseola, papular patches and, it may be, psoriasiform more or less circinate syphilides and, occasionally, alopecia. Never any mucous patches on the vulva, the anus or the mouth.

In women of the lower classes, those who follow manual occupations and have no time to attend to themselves, who do not wash themselves, we get interdigital mucous patches and on the genitals and anus huge vegetative, oozing hypertrophic syphilides which constantly recur.

In the man who smokes and does not attend to himself we get similar accidents, erosive or papulo-erosive syphilides of the lip, the buccal mucous membrane, the throat and the pharynx, papulo-erosive syphilides of the prepuce, the furrow of the glans, the scrotum, anus, etc.

In organisms undermined by excessive work, want, alcohol and especially by lack of cleanliness, there is a special liability to microbial associations which give rise to the deeply ulcerated,

grave, extensive syphilides which constitute early malignant syphilis.

I need not dwell further on this subject since the object of this short article is less to write a clinical picture of syphilis than to recall the fact that:

In the so-called secondary stage of syphilis attention to certain rules of hygiene will per se enable us to avoid the supervision of grave erosive syphilides of the folds and mucous membranes *viz:* by taking every possible care in respect of cleanliness (washing and drying all folds with inert drying powders) by abstaining from tobacco and alcohol, etc.

IV

The benefits attending careful hygiene however are far more marked in the later, the so-called tertiary, stage of syphilis. We know that the three terrible contingencies of this disease, the ones which haunt the brain of all victims of syphilis who are cognizant of the nature of their disease, are cancer, especially cancer of the tongue, tabes and general paralysis.

This raises the question whether by intensive antisiphilitic treatment, independently of hygiene, we can hope to avert them. This question has been much debated and is generally answered in the affirmative on the strength of statistics. For my own part I am by no means convinced of the absolute efficacy of the preventive mercurial treatment as against cancer of the tongue, tabes or general paralysis.

I assert that every old-standing syphilitic who smokes, whatever be the antisiphilitic treatment he has had, may develop leucoplasia on the buccal mucosa. I do not say that every syphilitic who smokes will have leucoplasia because to get this he must be predisposed thereto and, fortunately for them, all syphilitics are not liable to it but what I do say is that a syphilitic subject who is predisposed to leucoplasia, if he smokes, will have leucoplasia in spite of the most active mercurial treatment. I say too that if he continues to smoke after the supervision of the leucoplasia he may take as much mercury as he likes yet in most instances the leucoplasia will not get well, it may run on to cancer in spite of the mercurial treatment. It is understood of course that I am referring to real, fully-formed leucoplasia, not to merely opalescent states of the mucosa covering syphilides. Unfortunately errors of diagnosis on this point are very com-

mon. I have often been asked to see patients said to be suffering from syphilitic leucoplasia who were only suffering from pseudo-leucoplastic syphilitic lesions and there is no reason to be surprised that antisiphilitic treatment in these cases yields remarkable results. Conversely, it is extremely rare, though it is still possible, for cancer to supervene in a patient who does not smoke and who keeps his teeth and gums in a satisfactory state.

It will therefore be seen that the prophylactic and curative power of hygiene is infinitely greater than that of mercury.

It is possible that salvarsan may exert a curative action on fully developed, fully formed leucoplasia greater than that of mercury. My own experience on this point is not as yet sufficient to enable me to dogmatize and for reasons which I have set forth above I feel diffident as to the earlier successful results so far published. I admit theoretically that salvarsan may have a beneficial action in true leucoplasia. Arsenic is *the* remedy in epithelial affections. Its abuse is apt to determine the appearance of keratoderma and cancer and it has long been used with great success in these morbid states. We are therefore justified in hoping but none the less I hold that it is better not to provoke a lesion than to have to treat it and for my own part I boldly declare that I infinitely prefer to forbid a syphilitic patient to smoke, to enjoin care of the teeth and gums, to get him to keep the mouth in a satisfactory state, thus protecting himself against leucoplasia and cancer, than to have to treat him by means of therapeutical agents the efficacy of which, even if conceded, is not exempt from drawbacks.



Clinical observation has shown that locomotor ataxy and general paralysis are specially liable to supervene in patients whose nervous system is in a state of diminished resistance, whether this deficiency of resistance be hereditary or acquired. Certain it is that tabes and general paralysis are particularly liable to attack those who, during or after the infection, commit excesses or have in any way overwrought the nervous system and the brain. Intellectual people, financiers, speculators, doctors, etc., pay a heavy tribute to parasyphilis.

Are we justified in promising them that if they follow an intensive antisiphilitic medication they are at liberty to continue to overwork their nervous system? For my own part I do not

think so, indeed I often wonder whether, by giving them unduly large doses of mercury, we may not actually precipitate the supervention of these accidents, a horrid question which I have been fain to ask myself in presence of certain unhappy sequelae. Not that this means—and I hasten to proclaim it in order that my views may not be misinterpreted—that such subjects are not to be put on mercury but we must endeavor to ascertain what is the optimum dose for them (which is not always an easy matter) and this dose, it seems to me, ought not to be exceeded.

In an admirable paper read before the French Dermatological Society on December 10, 1891, Professor Fournier discussed the pathogenesis of tabes. He showed therein that mercury cannot be rendered responsible for the supervention of tabes in the great majority of cases, on the contrary the rational treatment of syphilis by mercury seemed to afford the patient some measure of protection against this terrible contingency and that is my personal opinion. But this does not imply that an excess of the drug may not prove injurious in a subject predisposed thereto and this is a matter quite distinct from the other.

After insisting upon the absolute necessity for instituting a regular, methodical, mercurial treatment in order to reduce the chance of tabes to a minimum, the illustrious syphilographer adds—and here I cannot do better than quote his own words—“In spite of rational, prolonged, specific treatment (which some would consider excessive) we sometimes witness the supervention of tabes.” Professor Fournier raises the question what may be the possible cause of these disasters, whether we are really acting for the best when consulted by a patient with syphilis, whether instead of giving him the stock prescription, we ought not to examine him more thoroughly, seeking to ascertain what are the weak spots in his organism and endeavoring by suitable hygiene to prevent this spot being attacked by syphilis. Now in respect of the nervous system “it is generally recognized at present that syphilis is attracted by and directed towards this system by two series of causes *viz* (1) overstrain of the nervous system (mental, moral or physical overstrain), (2) hereditary nervous predisposition. Well, if this be so, I would ask, to speak for the moment only of the nervous system, whether the usual treatment of syphilis as now practiced, takes sufficiently into account the dangers to which this system is exposed by syphilitic infection, in other words I would ask whether under existing circumstances, the prescription which we now hand to a patient with

syphilis, one whose morbid strain, either personal or hereditary, renders a "predestined" in respect of the nervous contingencies of the tertiary period, differs to any extent, indeed differs at all, in most instances, from that which we should give to another patient, happily for him, free from these dangerous predispositions. Commencing with a point which cannot be called in question, is it not obvious that we ought to recommend this patient to observe most rigorously the special laws of hygiene? Therefore, at the very onset and from the date of his infection, we ought to place him as far as possible on his guard against all causes capable of placing the nervous system in morbid state of excitement: such as excesses of all kinds, especially venereal excess, mental work entailing great cerebral tension, alcoholic and gastronomic excesses, over-fatigue, want of sleep, the wear and tear of social life, the emotions of the gaming table and the stock exchange, even violent bodily exercise, etc.

We cannot too deeply meditate these words of wisdom or spread them too widely in the medical world. Yes indeed, we must energetically treat syphilitic patients who are predisposed to nervous accidents but here again I think the principal prophylactic treatment of these terrible contingencies is the observation of the laws of hygiene. As is so aptly stated by this great authority we must persuade these patients to give up smoking, to relinquish alcohol, coffee and tea; to cease to overwork their spinal cord and their brain, moderate their cerebral work and avoid heavy responsibilities.

VI

But, you may exclaim, we are now entering upon a fresh chapter in the treatment of syphilis with salvarsan, we no longer get serious secondary manifestations so that in future we shall no longer run the risk of cancer of the tongue or tabes or general paralysis.

I have spoken highly of this valuable remedy when employed from the onset of the disease in order to try and abort it. I need not recall its curative effects which so rapidly get the better of refractory secondary or tertiary accidents of syphilis.

I do not know what it will do for the remote contingencies which we are discussing. We are at liberty to hope for the best but I must admit that I am the prey of grave doubts.

Administered at the stage of constitutional infection salvarsan does not sterilise it. The syphilis is not destroyed for it

persists in the economy, it is always there, latent, ready to accomplish its work of destruction and death, ready to strike the failing organ.

Now certain ill understood facts which are being classified, of which we are beginning to discern the significance and the bearing, seem to indicate that salvarsan acts more particularly on the nervous system, they lead us to fear that it does not render this system secure against the attack of syphilis however much the latter may have been attenuated by this powerful therapeutical agent. It would seem, on the contrary, that after its use the nervous system is one of the systems which is most liable to become involved.

At first I was unwilling to lend credence to the facts just referred to but I have been obliged to bow to the evidence. They call for new and patient research. Why should they occur in series and in certain environments and not in others? Are the affected subjects predisposed by the preexistence of a hyporesistance of the nervous system? or are there other causes which elude our observation? For the time being our attitude must be one of cautious reserve. It is none the less true that we have noted in our patients a whole series of accidents; late headache, vertigo, deafness, constitutional enfeeblements, etc., which were not met with in our syphilitic patients before the introduction of salvarsan.

These conditions seem especially to develop in subjects who are already in full secondary period when the salvarsan is administered. They are infinitely less frequent in those who are thus treated from the onset of the disease. For that matter they are extremely variable in respect of period frequency, consequently we should not be justified in taking our stand on these observations to constitute a decisive argument against the use of salvarsan at the secondary period in subjects with sensitive nervous systems.

Nevertheless, in spite of the obscurity that surrounds their pathogenesis, these cases require thinking over. If by any mechanism, or directly by its toxic action, salvarsan sensitizes or places the nervous system in a state of hyporesistance, what is likely to be the future of subjects with a somewhat fragile nervous system who have been treated by means thereof?

We must however be under no illusion and must not conclude in favor of the impossibility of such occurrences on the strength of the extraordinary efficacy of salvarsan in certain syphilitic

accidents of the nervous system. I will indeed go further, I believe, like many syphilographers, that by repeated injections of salvarsan we are able to bring about the disappearance of certain nervous accidents referred to above which are met with in syphilitic patients treated with salvarsan. The advocates of this method *per fas et nefas* make triumphant use of this argument, which however only proves one thing: *viz* that the patient's nervous system has been hyper-sensitized and it having thus been rendered a *locus minoris resistentiae* in the organism, the syphilitic accidents of the secondary period have fixed upon it. It is only natural that such a powerful antisymphilitic agent as salvarsan should cause the accidents in this system to disappear *but this in no wise proves that the self-same salvarsan has not sensitized the nervous system and is continuing so to do.*

I do not wish to dwell thereon, I do not propose to abandon myself to pessimistic considerations or to launch forth on hypotheses which are not yet justified and which I trust will not be confirmed by subsequent research. This agonising question cannot be settled for some years to come.

What I have said however will suffice to enable my readers to understand that I dare not at present rely upon salvarsan absolutely to do away with locomotor ataxy and general paralysis in subjects who have not been fortunate enough to abort the attack of syphilis from the onset.

Here again I would urge before everything else that such patients be induced to protect themselves by the necessary attention to hygiene against these terrible complications.

I may recall that there are races eaten up with syphilis, who do not take mercury nor arsenic yet in whom tabes and general paralysis are practically unknown. It is true that they dwell in the most absolute cerebral quietude and know not the febrile restlessness or the strain which are the sad attributes of so-called civilized nations. Is this not a most striking proof that the so-called antisppecific remedies do not play the most important part in the prophylaxis of the late nervous accidents of syphilis?

Whatever be the power of the new arms which have lately been placed at our disposal for the treatment of pox, the practitioner must clearly understand that the antique rules of therapeutics have not undergone any change. He must grasp the idea that his duty is first and foremost to place the organism in the best possible state to resist and thus minimise the virulence of

the infection; that by a well-ordained hygiene he may reduce to a minimum the secondary manifestations and the tertiary liabilities. In this way he will only be called upon to employ a minimum amount of the poisons which constitute the specific antisyphilitic remedies for the purpose of neutralising the effects of the treponeme and this will be all to the advantage of the organs of the subject whom he is called upon to treat.

FOR THE AMERICAN JOURNAL OF UROLOGY

EPIDIDYMOTOMY—A PLEA FOR A RATIONAL TREATMENT OF EPIDIDYMITIS

By ROBERT M. CULLER, M. D.

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THE incidence of epididymitis in gonorrhea depends on so many known and unknown factors that a discussion of them is likely to be long and unproductive. Experienced observers speak of epididymitis in a wide range of incidence. Bevan of Chicago says that "about 20 per cent. of gonorrheal attacks are complicated with an involvement of the epididymis." In a series of 159 cases of gonorrhea treated in one of our large military hospitals during the past year, epididymitis occurred twelve times, *i. e.*, in about 7.3 per cent. of the cases. Whatever factors effect this apparent variation in incidence, certainly this painful disease occurs with sufficient frequency to make a study of its successful management important to the genito-urinary surgeon.

The pathology of epididymitis is not intricate and is well set down in all the standard text-books. The teaching is that, after the invasion of the epididymis by the gonorrheal infection, abscess or cyst formation is the rule, although these collections are generally small and, if resolution takes place, the pus or fluid is absorbed. I make my plea for a rational surgical treatment on the foregoing statement which appears to be generally admitted by authors on the subject.

The appropriate treatment of this disease is obvious, if epididymitis is recognized as an acute pus infection of the epididymal coils. It is true that the suppuration usually remains in a small focus, and in many instances is eventually absorbed; but this termination sometimes takes place in an infected appendix, gall-bladder or fallopian tube, yet a surgeon will scarcely abide

such an event in these organs. Laying aside, then, the difference in life risk, it would appear that there is just as much surgical sense in applying a poultice over an infected gall-bladder as there is in applying one over an infected focus in the epididymis.

The books speak of an acute epididymitis due to instrumentation of the urethra in which no pyogenic organisms are concerned. It appears to me that an infiltrated globus minor is rather a remote expression of urethral trauma in the absence of any infectious agent. In a considerable experience with instrumentation of the urethra and bladder, I have never seen this type of epididymitis. The common variety, that due to gonorrhea or some other infection of the urethra, demands the same surgical attack as a pus focus elsewhere in the body, and that is incision and drainage.

Hagner of Washington, D. C., first invited attention to the excellent results of epididymotomy. Hagner's operation, described fully in text-books, seems formidable, and its rather complicated technic is most applicable to incipient cases. The principle which Hagner developed, however, can be applied to all cases, whether incipient or advanced. Early experiment with the Hagner operation convinced me of the value of epididymotomy and later experience with a simpler technic has convinced me that any treatment of epididymitis, other than operative, is unscientific, irrational and a compromise with ignorance.

I have performed the following simple operation in sixteen consecutive cases of epididymitis, some being incipient and some advanced:

Technic: Preparation consists of dry shaving of pubis and scrotum; one application of 2 per cent. alcoholic solution of iodine, followed by alcohol; primary ether anesthesia. Incision three-fourths inch in length in integument is made over most prominent part of infiltrated mass, down to the dense fibrous covering of the epididymis. Puncture is made of the tunica vaginalis testis from the nearest wound angle with blunt needle or tenotome. The dense fibrous covering over the major or minor body is then incised in the long axis of the tumor; this is accompanied by a marked lessening of resistance. The point of a slender hemostat is thrust into the mass with the idea of entering the pus focus. The blades of the forceps are slowly opened to effect a separation of tissue without undue tearing. The pus or fluid will escape at this stage if proper entry of the infected area is made. A 1-inch length of No. 3 rubber tubing is in-

serted into the bottom of the wound and fixed with a suture. Copious dressing and snug application of a jumbo suspensory completes the procedure which should consume about two minutes of time.

Local anesthesia is inadvisable on account of the risk of sloughing, especially in advanced cases in which the integument already partakes of the severe underlying inflammatory process. I would prefer to operate with no anesthesia if a general anesthetic were declined or if there were any contra-indications to its use. Dry shaving of the parts is done to render the iodine an effective skin disinfectant. A stronger solution of iodine than 2 per cent. will sometimes blister the scrotum even after the excess is removed with alcohol. Puncture of the tunica vaginalis for the acute hydrocele is done before the proper covering of the epididymis is invaded to avoid the risk of carrying infection into this sac. The hydrocele, nearly always present to a degree, is due to circulatory disturbance generally and not at all likely to be due to actual infection. Occasionally, smart hemorrhage follows breaking into the inflamed epididymis, but this quickly ceases. Pus will be found in all advanced cases and the fluid escaping in incipient cases will always contain gonococci. The drainage-tube is left in place forty-eight hours and two subsequent dressings usually suffice. One of the most striking results of this simple operation is the immediate and absolute relief from pain which is often expressed by the patient in extravagant terms of satisfaction. Indeed, this alone justifies the slight operative risk.

In my small series of cases, the following beneficial changes invariably took place, in the order named: (1) sudden and permanent relief from pain; (2) defervescence in forty-eight hours; (3) rapid reduction in the size of the inflammatory mass; (4) early healing of the operation wound without suppuration, except in cases in which the process already had proceeded to formidable abscess formation; (5) early convalescence without relapse.

Some observers think that epididymotomy effects a too deliberate accomplishment of sterility when it is applied to bilateral cases, believing that after cutting across the lumen of the epididymal coil, the passage of spermatozoa is impossible; others think that the spermatozoa may find new channels through the scar tissue and find exit by diapedesis or migration. In my series of sixteen cases, one only was bilateral, and in this case

bilateral epididymotomy was performed in the firm belief that the slight scar tissue which remains after operation is less an obstruction to the passage of spermatozoa than the dense fibrous "ball" which so often remains as a permanent relic of a penalty paid to folly.

Benzler's figures seem to prove that 41.7 per cent. of all bilateral cases of epididymitis result in sterility. Statistics are not now available to prove whether epididymotomy produces sterility when applied in every bilateral case, but since the preponderant number of cases are unilateral, and since after epididymotomy such rapid recovery occurs in every instance, the collective gain in shortening the course of *all* cases offsets the disadvantage of an occasional sterilization.

SEXUAL IMPOTENCY IN THE MALE

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AUTHORIZED TRANSLATION. EDITED WITH NOTES AND ADDITIONS BY
DR. W. J. ROBINSON

[Continued from the March issue.]

X. PRIAPISM RESULTING FROM GENERAL DISEASES

IN contrast to the nervous priapism just considered, this form of priapism is always acute: that is, an erection develops, which lasts continuously day and night.

Such forms of priapism have been observed in intoxications and in infectious diseases.

Such permanent erections have been noticed after poisoning with cantharides and other "aphrodisiacs" (Yohimbin).

Laurent and Nové-Josserand report (*Gazette des Hôpitaux*, 1903, page 1203) a remarkable observation made by them concerning "medicinal" priapism. The inhabitants of the island Levant in the group of Hyère Islands relate, that they suffer every year from attacks of priapism, when the migrating birds pass over their island on their way south. They ascribe it to the action of the excrement from the birds, which feed upon the "Spanish flies" (cantharides).

Priapism may be produced experimentally in animals by injecting muscarine or the blood of a suffocated animal (Landois, Nikolsky).

Persistent erections have been observed also in a few infectious diseases, especially in rabies.

In these forms of the disease we must suppose the priapism to arise through the selective effect of the toxins upon the sexual center in the spinal cord and in the sympathetic plexuses.

It is otherwise in the priapism observed in the various constitutional and blood diseases. Thus we find diabetes often mentioned in the literature of the subject as a predisposing cause. I could never find, however, clinical history that could be at all utilized.

LEUKEMIC PRIAPISM.

Relatively the commonest form of priapism is that observed in the diseases of the blood, especially in leukemia.

The first publication on this subject was by Klemme in 1863, and I succeeded in collecting the following cases of leukemic priapism from the literature: Adams, Bernstein, Carpenter, Edes, Goebel (two cases), Haillot and Viardon, Kast, Klemme, Longuet, Matthias, Neidhart, Neumann, Peabody, Rokitsky, Salzer, Schulze, Sticker, Vorster, Ward, Wetherell.

The symptomatology and pathogenesis is almost identical in all these cases, the clinical histories have already been cited so many times that we can well refrain from repeating them here again. Besides, our own cases form perfect types of leukemic priapism. We have observed two cases of this disease, one of which was published in the *Wiener Klinische Wochenschrift*, 1906, number thirty-eight. The second case we have not yet published.

CASE 1. *Leukemic priapism.* Joseph B., 20 years old, entered the urological department May 1st, 1906.

The patient does not remember ever to have been seriously ill. Has suffered from frequent nosebleeds since his 16th year. Other hemorrhages did not occur. Family history shows no blood diseases.

Patient denies that he was ever given to masturbation, and does not remember ever having had pollutions. But he has erections often at night. Has had regular sexual intercourse since his 15th year. Has never suffered a venereal infection.

Six months ago he fell from a ladder upon his perineum and suffered a crushing of the right testicle, which led to a traumatic epididymitis, that healed completely after six weeks.

On the 24th of April he awoke with a violent erection, which still persisted after micturition. He tried to go to his work, but could hardly move on account of violent, drawing pains in the testicles, and hence went to bed. Local treatment with ice and hot compresses was of no use. He came to our clinic on the first of May. The penis had been continually in a state of erection since the 24th of April. During this entire time he had no sexual desire and no pollutions.

Status praesens. A striking pale, weakly patient. The visible mucous membranes anemic. Slender build, no pains in the bones, no edema, no cyanosis.

The chest is negative except for a weak systolic murmur at the apex of the heart.

The abdomen is somewhat distended. The entire left side is taken up by a tumor, which extends beyond the middle line with a conical process the size of a goose-egg and down to the hip-bone; it feels smooth and dense to the touch, and from its form, consistency and position can be diagnosed as a splenic tumor. Its largest dimensions are twenty-eight cm. long by twenty-four centimeters wide.

Numerous lymphatic glands in size from a pea to a hazelnut may be felt in the groin and axilla and also in the right supraclavicular space.

The penis is in maximal erection, and is 21 centimeters long; it feels as hard as bone. It is evident on nearer examination that the erection is limited to the corpora cavernosa, the blunt ends of which may be felt through the quite flaccid glands, which is half covered by a normal prepuce. The corpus spongiosum is flaccid and soft. The penis lies nearly on the middle line of the body; the glands almost reaches the navel. The penis skin is quite unchanged.

On rectal examination one finds the ends of the corpora cavernosa erected, hard and firm; the prostate is normal.

The urine contains traces of proteid and in the sediment uric acid crystals of whetstone and barrel shapes in great abundance and numerous squamous epithelia and leucocytes.

The blood examination showed a proportion of leucocytes to erythrocytes of 1 to 5 (565,000 white and 3,235,000 red corpuscles). The blood was typical of myelogenous leukemia.

We may mention in regard to the further course of the case, that the priapism remained unchanged in spite of all local measures, ice and baths, and the Roentgen ray treatment given until the 26th of May (that is, for 32 days). On that day the corpora cavernosa felt softer, and one could clearly make out fluctuation in one place in the middle of the penis. A diagnostic puncture was made and about half a centimeter of bloody fluid was aspirated. This showed under

the microscope a plasma extremely poor in fibrin and numerous red corpuscles in advanced stages of degeneration ("morning-star" forms and "shadows" of corpuscles, and yellow detritus), also remains of leucocytes and numerous granules. The whole preparation was interspersed with countless strongly refracting crystals of various lengths (on the average about five erythrocytes in diameter). They are narrow, acicular, and run out to a sharp point. They remain uncolored on the addition of Lugol's solution, and must be Boettcher's crystals or spermin crystals.

After this the erection gradually diminished, only the root of the penis still showed induration for a long time. The patient could finally leave the hospital after the erection had lasted in all nine weeks. The Roentgen-ray treatment, which consisted in irradiation of both the spleen and bones as well as the penis, had no essential effect upon either the erection or the blood. The splenic tumor, however, diminished about a third in size.

CASE 2: Thomas K., 39 years old, shoemaker. History: family history unimportant. Some fifteen years ago suffered from bronchial catarrh for a long time, without spitting blood. Neuralgia in the lumbar region for several years. Two years ago had multiple furuncles. Often has nosebleeds; markedly pale for the past year. Denies lues and gonorrhea.

During the last two years he has suffered from attacks of priapism coming at night about once in five weeks some four hours after going to sleep, and lasting one to two hours. They were very painful, and never produced any sexual excitement. This condition became steadily worse; the attacks came oftener and lasted longer. The patient is married; his sexual power is undisturbed, but the marriage of six years' duration is childless. Three weeks ago he had another attack and on coughing suffered a sudden severe pain in the right inguinal region; after this the erection became every hour stronger and stronger. It has been permanent since that time; three days after the beginning of the erection the pains were unbearable, and he could urinate only with the very worst burning pain.

The penis is in a state of maximal erection and bent to the

right. Fluctuation is clearly discernible in the roots of the corpora cavernosa. The physical examination further shows the diaphragm displaced upward and the liver enlarged, with a blunt edge and extending in the parasternal line three finger breadths below the costal margin. The spleen is much enlarged and hard, the cleft is palpable on the right below the navel; the spleen fills nearly the whole left half of the abdomen and extends beyond the middle line.

The blood examination shows the following condition:

Number of red corpuscles,	3,420,000
Number of leucocytes,	392,000
Hemoglobin content,	55 to 60%
Color index, 0.8.	

Proportion of red to white corpuscles is
8.7 to 1.

Among the leucocytes are found 41% polynuclear neutrophiles, 2% polynuclear eosinophiles, 31% myelocytes, 6% eosinophilic myelocytes, 12% mast-cells, 3% transitional cells, and 6% lymphocytes.

The red cells show poikilocytosis, rare normoblasts, and no megaloblasts (Dr. Bleier). I am indebted to Dr. Eisenstädter for my knowledge of this case, and wish to express my thanks to him.

The priapism lasted well over two months in this case and then gradually disappeared; the patient was subjected to Roentgen-ray treatment in Dr. Kienböck's Institute. The painfulness of the erection decreased *pari passu* with the diminution in size of the spleen. We could learn nothing further concerning the outcome of the case.

[A very interesting case of priapism is reported by Billaud (*Prov. med.*, March 23, 1912, through *Ept. Brit. Med. Jour.*, May, 1912). The patient was a farm servant aged 26, who had been married a month. There were no pathological antecedents, although the man was of a nervous temperament. Up to the time of entry into hospital the state of priapism had lasted for seventeen days. The condition had commenced suddenly without apparent reason, and the turgescence and rigidity extended to the spongy tissue of the organ as well as the corpora cavernosa. No medical treatment had been of

any value. Cold and hot applications and compresses, leeches to the root of the penis and applied to the lumbar region, were equally unavailing. Bromides, morphine, and chloral had only the effect of making him drowsy. They had no local action. Sexual intercourse was out of the question, as intromitus became impossible owing to the size and wooden hardness of the organ. Masturbation resulted only in making the continuous pain more severe. The weight of his clothes, the least movement, became insupportable. He passed urine normally and without pain, and this indeed was his sole relief. An anesthetic having been administered and a gum-elastic catheter placed in the urethra, two parallel incisions—each corresponding to a corpus cavernosum—were made. A quantity of black viscid blood immediately escaped, and the organ subsided. The next day, after a good night, the patient suffered no further pain. There was still some œdema, however, and hot fomentations were applied. The wound practically healed by first intention, and a few days later was only slightly swollen. The patient left hospital after twenty days, and up to the time of leaving had had no erection; the author is unable to say when erection occurred again.—W. J. R.]

The attempts to explain this peculiar symptom of leukemia are as old as the knowledge of it. In Klemme's case severe nosebleeds, bloody stools, and a hemorrhage into the left knee-joint occurred simultaneously with the erection, and he thought it beyond doubt that the erection was connected with the various hemorrhages and considered it probable that an extravasation of blood had taken place in the corpora cavernosa.

According to Longuet's view the large number of white corpuscles in leukemia favors the circulatory disturbances in the erectile tissues, which occasion thrombosis and resulting permanent erection. Leukemic blood has a greater viscosity than normal, and this abnormal physical and chemical nature of the blood may alone lead to thrombosis of the small vessels. Neidhart and Matthias accept the explanation of Longuet for their cases, but do not deny the possibility of a nervous effect. Salzer explains the erection in his case by the stimulation of the central nervous apparatus by the leukemic blood or by the

pressure of the swollen pelvic lymphatic glands upon the nervi erigentes.

It seems to me appropriate in this place to report some important observations of the Bromberg neurologist, Dr. Kunst, made in private communications (August to September, 1907), for which I am indebted to him.

"There occurred in a sufferer from myelogenous leukemia, who was ignorant of his disease, after a drinking bout an attack of priapism with tormenting tenesmus. I saw him after he had been ill twelve days; there was maximal erection of the corpora cavernosa, the corpus spongiosum being unaffected, and also a state of irritation of the sympathetic pelvic muscles. On introducing the finger into the anus, the internal sphincter pressed about it like a ring. The patient had at the same time the feeling that all the organs were pulled forward and the erection strengthened. The abdominal and cremaster reflexes are absent, but the scrotal is present. There is hyperesthesia in the realm of the third to fifth sacral nerves. The glans is normally sensitive. The suffering is aggravated by defecation. It is surprising to me that a change in position of the spleen by means of a compressing bandage considerably alleviated the troubles and caused a marked diminution of the erection. Epidural injection of a minimal dose of cocaine brought prompt relief for a short time; later I gave suppositories of cocaine twice a day. The patient's condition was thereby made tolerable, but the swelling did not entirely go away; treatment with atoxyl brought about a considerable diminution of the splenic tumor, and then these complaints and phenomena disappeared. My observations are opposed to the theory of thrombosis and suggest much more an interruption of the sympathetic. During the priapism the patient could perform coitus as usual; later, however, he became incapable of erection, but ejaculation was not affected."

This observation of Kunst's speaks decidedly in favor of a direct effect of the pressure of the splenic tumor or the swollen glands upon the mesenteric and pelvic sympathetic plexuses. Since we also know that considerable importance must be ascribed to these sympathetic ganglia in erection (E.

Müller), the supposition of Kunst concerning the origin of the erection becomes quite plausible to us, and we endorse the same opinion, that in some cases *this nervous factor is predominant at the beginning* in the causation of priapism. Later, secondary transformation-thromboses of course occur in the corpora cavernosa, which explain the outcome in our cases and in Kunst's observation, namely, the loss of the capacity for erection with an otherwise normal course of the sexual act.

In the cases of Goebel and Käst, which came to surgical autopsy, a thrombosis of the corpora cavernosa could be clearly proved as the cause of the leukemic priapism. In Goebel's case erections of some duration preceded the real attack, and he ascribes these to the changed physical and chemical character of the blood. The protracted attack is, however, to be explained by the addition of an internal injury to the corpora cavernosa and the resulting occlusion of the veins draining these tissues.

In Käst's case, which also came to autopsy, it was demonstrated macroscopically and microscopically that a white thrombus of the corpora cavernosa was the cause of the persisting erection.

Our first case did not indeed come to autopsy, but we are enabled by various considerations to assume here also a thrombosis of the corpora cavernosa as the cause of the priapism.

In consideration of the traumatic history—the patient had fallen some time before upon the perineum—we thought at first of a cause of the erection located in the spinal cord (shock to the spinal medulla, hemorrhage into the spinal cord, or traumatic myelitis). The nervous state was quite normal, however, in our patient; there were no motor or sensory phenomena of irritation or paralysis, and micturition was in no way interfered with. The further fact, that, as in almost all reported cases of leukemic priapism, there was merely a stiffening of the corpora cavernosa without the least affection of the glans or the corpus spongiosum, indicated a local cause. It is indeed true that also in normal erection the corpus spongiosum is less affected than the corpora cavernosa, yet a

certain degree of erection of the former can be demonstrated in every erection of central nervous origin.

The peculiar nature of the fluid obtained by the test-puncture of the softened corpora cavernosa deserves a few words. The aspirated fluid consisted of numerous greatly changed leucocytes and erythrocytes and countless acicular crystals (Boettcher's crystals) interspersed. We do not venture to decide whether these originated, like the crystals occurring in the post-mortem blood of leukemic persons, through the transformation of the long stagnant blood, or whether they participated in the origin of the thrombosis in the corpora cavernosa, perhaps by a lesion of the delicate intima of the cavernous spaces. At any rate this very singular condition deserves mention.

The cause of the thrombosis of the erectile tissues in leukemia lies in the abnormal chemical and physical qualities of the leukemic blood. The tremendous increase in the number of leucocytes, in our case perhaps the presence of numerous Boettcher's crystals in the blood, and the substance first demonstrated in the blood of leukemic patients by Lilienfeld—thrombosin—which favors thrombosis in a high degree—all these conditions must be held responsible for the origin of thrombosis in the corpora cavernosa.

We cannot say with certainty, whether we should not consider as a primary cause of leukemic priapism an erection of long duration of nervous origin with secondary thrombosis of the corpora cavernosa. The observations of Kunst strongly favor the hypothesis that the primary cause of the protracted erection is to be sought in the compression of the sympathetic by the splenic tumor and the swollen glands.

Salzer indicated the possibility, as has been mentioned, that the pressure upon the nervi erigentes produced the permanent erection.

The DURATION of the priapism varies greatly, depending upon the particular cause. Priapism arising from local causes, and the inflammatory, traumatic, and finally the leukemic varieties last as long as does the abnormal distension of the corpora cavernosa. If the pus-cavity is evacuated by the

knife, or a hematoma of traumatic origin is opened, the erection usually subsides rapidly.

If the cause of the stiffening is a thrombosis, it lasts as a rule four to eight weeks, until the thrombosed corpora cavernosa are organized and the extravasated blood is absorbed. The prognosis of priapism of local origin is in general a good one. In some cases, however, secondary infection of the thrombosed tissue occurs, which may lead to suppuration of the corpora cavernosa and general pyemia. The prognosis of the primary disease, that occasioned the priapism, determines also the outlook for this symptom.

The result of inflammatory priapism consists as a rule in deformities of the penis, which are extremely unpleasant, especially in a state of erection. In a few cases these even cause a mechanical incapacity for coitus.

Complete impotence supervenes in more than half the cases of leukemic priapism after the erection ceases. It cannot be determined whether this is brought about by local changes in the erectile bodies, or in the central nervous apparatus, or finally by the dyscrasia produced by the primary disease.

Chronic nocturnal priapism, the neurosis described above, has as a rule a serious prognosis as regards recovery. The condition usually becomes worse, especially after instrumental treatment, and only with a completely changed mode of life can a relative cure be obtained. Most of the cases of this kind last many years, however, and end not rarely in impotence.

Those cases of nocturnal priapism which are due to a local infection of the urethra or its glands have a good prognosis.

We have still something to mention in regard to symptomatology. Pain is not a constant symptom of priapism. Whereas in some cases, especially in leukemic thrombosis of the erectile bodies, the whole affection may have an entirely painless course (see our case No. 1), the severest pains are reported in other cases and even in leukemic priapism.

In our second case there was severe spontaneous pain, especially in the roots of the corpora cavernosa, touching or pressing which at once produced the severest paroxysms of pain.

The form described as chronic nocturnal priapism is characterized by especially severe pains during the attack. The pain of the erected penis awakes the patient from sleep and does not let him rest again until he has in some way brought about a decrease of the organ. Such patients make use of every conceivable means to banish such unwelcome erections. They try cold compresses and hot compresses, they put their feet in hot water, they try to banish the erection by performing coitus without any libido, they take internally the well-known antiaphrodisiacs camphor, lupulin, bromides, morphine, etc. But all these measures have no effect worth mentioning in the long run; the patients become very excited and desperate; their loss of sleep together with the increased irritation from joyless cohabitations pulls them down physically and aggravates the symptoms of sexual neurasthenia.

It is really astonishing that patients with permanent priapism occasionally do not suffer at all with their annoying erection, whereas an erection lasting only one to two hours causes the most excruciating pains in those who suffer from nervous priapism. Even the occurrence of an infection, which may lead to suppuration of the corpora cavernosa, is described in some reports as a painless complication. (Goebel, Richet.) We might perhaps suppose that the sensations of pain were not brought to consciousness on account of a lesion in the central nervous system. Priapism causes the most pain as a result of inflammatory processes, which spread from the urethra towards the corpora cavernosa. Most familiar are the torturing pains of the patients who suffer from periurethritis and gonorrheal cavernitis. These patients have hardly succeeded in getting to sleep by combatting the spontaneous pains with morphine and similar drugs, when the most painful erections occur, "*la chaude pisse chordée*," because the inhibitory action of the cerebrum is suppressed and the conditions of irritation in the genital reflex centers act unhindered, and all sleep is over for that night, until they have made the erection disappear by means of cold compresses or by putting the body in a certain position.

The patients complain of disturbances in micturition in many cases of priapism. There is occasionally inability to

urinate, not only in the temporary erections of the neurasthenic, but also in the protracted priapisms of the leukemic sufferers. In some cases reported—apparently because of the difficult mechanical conditions—urination was at all possible only when the patient took certain positions; for example, the knee-elbow position. In other cases the physician was compelled to resort to the catheter to empty the bladder. There is no hindrance to urination, however, in most cases. The inconvenience consists only in the fact that it may be difficult to catch the urine because of the position of the organ, and accordingly the patients have to pass their water lying on the side or on the abdomen.

Defecation may also under some circumstances be interfered with or accompanied by severe pains on passing the stool. The contracture of the perineal muscles, especially of the sphincter ani, may cause these complaints.

Finally as regards the disorders of potency in the different forms of priapism, it was indicated at the beginning that it belongs to the characteristic signs of pathologic priapism, that there are no libidinous impulses during the stage of erection.

(To be continued)

REVIEW OF CURRENT UROLOGIC LITERATURE

ZEITSCHRIFT FÜR UROLOGIE

Vol. VI, No. 12, 1912

1. Malignant Simple Tumors of the Testicle (Carcinoma, Sarcoma, Adenocarcinoma.) By Arnaldo Vecchi. P. 967. (Concluded).
2. A New Lamp Modification for the Operating Cystoscope and its Application. By H. Lohnstein. P. 990.
3. The Question of Perineal Prostatectomy. By Hans L. Posner. P. 998.
4. A Modification of Goldschmidt's Urethroscope. By S. Jacoby. P. 1007.
5. The Treatment of Benign Papilloma of the Bladder by Means of the Oudin High Frequency Current Applied through the Ureteral Cystoscope. By Edwin Beer. P. 1009.

1. Malignant Simple Tumors of the Testicle.

Sarcoma.—If the common large celled tumors are excluded from the category of sarcoma the latter will form but a small proportion of testicular new growths. In this communication Vecchi describes two cases of sarcoma. The first was of the small, round celled variety; the second of the mixed celled. In both instances the growths were primary. The tumors developed rapidly and showed evidences of active cell proliferation. Growth was extracanalicular and infiltrating in nature, there being no evidences of compression of the surrounding testicular tissue proper. Macroscopically the neoplasm was soft, non-lobulated, rose-yellow in color—features which at once distinguished it from a large celled tumor. Clinically the former is distinguished from the latter by its greater malignancy and by its distribution along the blood rather than the lymph stream.

Adenocarcinoma:—This form of growth in all probability arises from the excretory channels, *e. g.* tubuli recti, rete testis, of the testicle. In the author's single case the tumor involved the mediastinum testis, the adjacent portion of the testicle proper, the epididymis, and the vas. The involvement of the latter was probably by way of the lymph stream. The growth itself was of a fibrous consistency and presented numerous knobs on its surface. There were no areas of softening, nor were cysts found on sectioning the mass. Microscopically the growth was composed of epithelial cells, with large nuclei, arranged in canaliculi, the whole being supported by a rich connective tissue stroma.

(The author appends a bibliography of eighty references).

2. A New Lamp for the Operating Cystoscope.

Hohnstein describes his operating cystoscope in which the lamp is not situated at the tip of the instrument but at the proximal side of the lens instead (from the observer's point of view). In his latest modification the lamp, which is movable and can be adjusted at any point between the lamp and the snare, has been enlarged, thus preventing its burning out too quickly. Moreover the ordinary round cysto-

scopic lens is employed—instead of the special oval one first recommended—thus considerably lessening the cost of the instrument. The advantages claimed for this arrangement are that tumors relatively far from the neck of the bladder can be accurately snared and completely ablated and that the operative field is not obscured towards the end of the process, as was the case with the old instrument. For tumors and other bodies situated in the region of the vesical neck, the instrument has no advantages over those commonly employed.

3. The Question of Perineal Prostatectomy.

Posner strongly urges conservative ectomy of the prostate—i. e. removal only of the enlarged lobes of the gland, while sparing the capsule, colliculus, and ejaculatory ducts—rather than complete extirpation. This end, he insists, can be best accomplished by the perineal route. The objections to the suprapubic method, as now commonly employed are:

1. The unaseptic procedure of having the surgeon push the gland up into the wound through the rectum.
2. The long bladder incision often necessary for the removal of a large prostate.
3. Postoperative hemorrhage into the bladder which is but ineffectually controlled by packing and hot irrigation.
4. The defective drainage, which not only begins at what is practically the *highest* point of the wound, but which, by plugging of the drainage tube and catheter may actually endanger the life of the patient.

The causes of death after prostatectomy are attributable to:

1. Insufficiency of the urinary apparatus, uremia, etc., which sometimes occurs despite careful functional tests and which, of course, is equally common in both suprapubic and perineal methods of approach.
2. Disturbances of the circulation are due to the natural association of arteriosclerosis with prostatic hypertrophy. In this regard Posner feels that the Trendelenburg posture, often required in the suprapubic method, is a much greater tax on the circulation than the lithotomy position of perineal section. Moreover, the employment of local anesthesia, as worked out by Francke and the author (in which the *nervi pudendus* and *pelvicus* are infiltrated with novocain-adrenalin solution) still further lessens the danger in this connection.
3. Respiratory complications are much less frequent after perineal section, as effective cough with free expulsion of mucus is much more feasible where no abdominal wound is present.

As the best operative procedure Posner recommends that of Wilms. The patient being in lithotomy position, a lateral incision is made along the ascending ramus of the left pubic bone. This incision spares the *bulbi cavernosi* and the *ampulla recti* and allows of an easy side

approach (without injuring the ejaculatory ducts) to the capsule of the prostate and to one of the prostatic lobes. Only the skin and superficial fascia are gone through by sharp dissection. The triangular ligament, levator ani and deep pelvic fascia are divided by blunt dissection. The prostate can now be readily felt, being brought forward by a Young retractor previously introduced into the bladder. First the left half of the prostate is ablated, then the retractor is withdrawn and the right lobe similarly delivered. The bladder being opened by this procedure—if necessary this can be accomplished deliberately by blunt dissection—the interior is palpated for a possibly enlarged middle lobe, or for stone. A drain is then introduced, the wound packed, and the skin united. Wilms has done the whole operation, in appropriate cases, in two minutes. This method is practically bloodless.

Postoperative treatment consists for the first five days simply in changing the outer dressing, as all the urine passes through the drainage tube. On the 6th day the tube and packing are removed, the perineal wound freshly and lightly packed, and a permanent catheter introduced. This latter is allowed to remain as long as possible, as a urethritis may result early and require the catheter's removal. In 14 to 18 days the wound is healed and the permanent catheter is removed for good. In three weeks the bladder sphincter is again under control and by the time of discharge, in 26 days on the average, the patient can hold his urine for from one to two hours. The author's mortality by this method, in a small series of cases, compares very favorably with that of the suprapubic method.

4. A Modification of Goldschmidt's Urethroscope.

With the original instrument only the summit and the anterior aspect of the colliculus seminalis are visible; the posterior aspect, namely that facing the vesical sphincter, and the deep lying part of the posterior urethra, *viz*: the fossa prostatica, do not come into the field of vision. Jacoby's modification consists in providing the Goldschmidt instrument (or any other in which the lamp lies opposite the window), at its point of "posterior illumination," with a mirror in hypothernuse relationship and which will then show the parts usually hidden.

In examining with Jacoby's instrument two pictures are seen. The first is the usual one, near to the eye, and with the details enlarged; the other lies further off and is the mirror image. There is no confusing the two pictures as the mirror is seen as such in the visual field. In order to obtain clear images it is especially necessary to keep the mirror clean by constant irrigation.

5. Treatment of Benign Papilloma of Bladder by Means of High Frequency Current.

For this purpose Beer uses a high frequency machine with Oudin

resonator, a Nitze double catheter cystoscope, and a well isolated copper unipolar electrode. The rheostat is arranged vertically so that only half the resistance is thrown into the circuit. The length of the spark is $\frac{1}{8}$ to $\frac{1}{4}$ inch.

To make an application the electrode point is thrust into the growth for a short distance, by sight, and the current allowed to flow for 15-30 seconds. During this period various parts of the growth are attacked. The bladder is to be washed out constantly during this procedure. An eschar is formed and this can be washed away piecemeal through the cystoscope. The treatment should be repeated at intervals of a few days until no more living tumor cells are left within the bladder. The patient should be cystoscoped at intervals after apparent cure to see that no recurrence has taken place. Perforation of the bladder wall should never occur as a complication of this method if the application is made by sight. Hemorrhage may result but this can readily be controlled by a reapplication of the current.

Beer objects to the name "fulguration" for his method and points out why that designation should be restricted to the procedure of de Keating-Hart. He feels that his method will give at least as good results as Nitze has obtained with his operating cystoscope; and he has shown that in over 200 American and 28 European cases treated by his method the results have been most satisfactory.

The selection of cases is important:

1. All papillary carcinomata should be excluded from such treatment since malignant cases are never benefited. They should be radically operated on by the transperitoneal route. The diagnosis of malignancy may offer difficulties. Of course, pieces of tissue are necessary for microscopic examination. These may be obtained by irrigating the bladder after the operation or pieces may be chopped off by the cystoscope tube itself. Finally a portion of growth sufficient for examination may be bitten off with a Young's rongeur.

2. All patients who are intolerant of cystoscopic examination are naturally unfit for intravesical treatment.

3. Those few tumors which are not visible either by direct or by indirect vision are also unfit for treatment; as are also large growths situated at the neck of the bladder, which are injured by the passage of the cystoscope, cause bleeding, and thus prevent careful work.

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ZEITSCHRIFT FÜR GYNÄKOLOGISCHE UROLOGIE

Vol. IV., No. 1, January 1913

1. On the Channels Concerned in Spreading Postoperative Infection in the Female Urinary Tract. By A. Bayerlein. P. 1.
2. A Band-like Adhesion between Small Intestine and Bladder Apex, Diagnosed by the Cystoscope and Confirmed at Laparotomy. By Benno Ottow. P. 29.
3. Vesico-vaginal Fistula Repaired by Free Transplantation of Fascia. By H. H. Schmid. P. 33.
4. Migration of Tampon into Bladder After a Schauta-Wertheim Prolapse Operation. By W. Stoeckel. P. 38.
5. The Structure and Histogenesis of Congenital Kidney Tumors. By A. Dienst. P. 45.
6. A Case of Left-sided Dystopy of the Kidney, Combined with Right-sided Pyelonephritis of Pregnancy. By R. Ekler. P. 51.

4. Migration of Tampon into Bladder after Schauta-Wertheim Prolapse Operation.

A woman of 45 came to Stoeckel saying that she had been operated on some time previously for a large prolapse but gave no further details. Recovery was fairly rapid but a severe cystitis developed, which became worse despite local treatment. Cystoscopic examination revealed what appeared to be a large stone about the size of a small apple fixed to the wall at the right and a little above the base of the bladder. No foreign body was seen anywhere about the stone and, remembering the recent operation, Stoeckel assumed that he had to deal with a concretion developed about a ligature.

Lithotripsy was now attempted under lumbar anesthesia but despite apparently successful grasping and crushing of the stone and evacuation of fragments the original mass did not seem to decrease much in size. In fact it began to feel soft and presently a piece of gauze was withdrawn with the lithotrite per urethram. Only a short piece however was removable, the rest of the mass remaining fixed despite further crushing of its stony shell. The diagnosis was now established of a tampon covered with a calcareous deposit and fixed to the posterior bladder wall.

Stoeckel next attempted the removal of this tampon by a colpocystotomy. He made a vertical incision in the anterior vaginal wall, pushed the cervix up, and came upon — instead of bladder — body of uterus. It was now clear that an interposition of the uterus (between bladder and vagina by sharp ante-flexion) after Wertheim-Schauta, had been done at the previous operation. After enlarging his incision forward Stoeckel succeeded in separating the fundus uteri from the bladder and pushing the uterus upward. A longitudinal incision was then made in the base of the bladder, guided by a forceps introduced through the urethra and the tampon removed. The bladder wound was then closed, the uterus brought down into its previous position,

fixed, and the external wound sutured. Recovery complete in two and a half weeks.

The author gives the following explanation of the findings: A tampon was left at operation between the base of the bladder and the posterior wall of the (anteflexed) uterus. An abscess formed which could not break through the thick uterine wall nor channel around the uterus to the vaginal suture line. On the other hand the close-lying and injured bladder wall as well as the constant tendency of the uterus to resume its erect position both served to force the tampon into the bladder, where acting as a foreign body it served as a deposit for urinary salts and set up a severe inflammation.

The author points out that only the most careful hemostasis (for blood clots may behave as foreign bodies in this regard) as well as the strictest supervision of all instruments of every description used in such operations can prevent the recurrence of such accidents. He describes the precautions he uses in such cases and enters into the medico-legal aspects of the case.

6. Left-sided Dystopic Kidney with Right-sided Pyelonephritis of Pregnancy.

Ekler's patient was a woman of 32 who was in her third month of pregnancy when she came under observation. She had always been healthy but for the last three months had complained of drawing pains in the lower abdomen of increasing severity. There was no vomiting, no fever, no trouble with urination. The abdomen was somewhat swollen and sensitive to pressure in the left iliac region where a rounded, rather elastic and movable tumor could be felt. No hilus was made out nor was any pulsation noticed. The mass seemed to be connected with the left horn of the uterus which was readily palpable and corresponded in size to that of a three months' pregnancy. The diagnosis of cystic ovary was made and operation undertaken.

A median incision was made in the lower abdomen. The uterus was delivered and found pregnant as expected. The adherent omentum was freed from the abdominal wall and the adnexa found negative. On pushing the uterus to the right a retroperitoneal mass was made out next to the spinal column, with its lower pole extending into the pelvis, and recognized as a (normal) dystopic kidney. The overlying posterior parietal peritoneum, the capsula adiposa, and the capsula fibrosa were split over the kidney in such a way as to form two lateral flaps. After partially freeing it from its capsula propria, the kidney was pushed up a little and the two flaps sewed together beneath it with three tiers of catgut sutures.

Recovery was good but a week after operation the lower pole of the kidney was felt in the pelvis in the same situation where it was before intervention. Although the author felt at the time of operation that his procedure could not be counted on to prevent a recurrence,

still he was not justified in considering a nephrectomy as he had no information concerning the function of the other (right) kidney.

Eight days after operation the patient began to complain of pain in the right kidney region. Catheterized urine was very cloudy and contained numerous leucocytes. Cystoscopy revealed a normal left ureteral opening, but the catheter was blocked when introduced into the right ureter. After irrigation however a few drops of pus came away. *Bacterium coli* was isolated in the specimens. The patient therefore had a severe pyelonephritis (pregnancy) on the right side. Abortion was then performed in view of the affection of both kidneys and was promptly followed by improvement in the local and general condition. Of course as the dystopic left kidney would always offer an obstruction to labor the author suggests sterilization of the patient as the best procedure for one in her position.

ZEITSCHRIFT FÜR UROLOGIE

Vol. VII., No. 1, 1913

1. Pseudotrichiasis of the Bladder and Pilimicturition. By Julius Heller. P. 1.
2. Congenital Stenosis of the Posterior Portion of the Urethra. By E. Heinecke. P. 22.
3. A Primary Urethral Carcinoma of the Fossa Navicularis. By Benno Ottow. P. 30.
4. Preservation and Sterilization of Flexible Instruments. By Felix Hagen. P. 34.

1. Pseudotrichiasis of the Bladder and Pilimicturition.

Heller has observed a case of pilimicturition (elimination of hair through the urine). The patient was a man of 41 who had had gonorrhea at 20 and again at 23. Eight years ago he had a severe attack of cystitis and nephritis complicated with orchitis; four years ago sudden bilateral epididymitis and bladder catarrh. Although the general condition cleared up under treatment, the urine remained cloudy and had a peculiar odor.

In April of last year there was a sudden hemorrhage from the bladder which lasted eight days. The presence of a stone was determined by cystoscopy and in May the operation of lithotripsy was performed. In the removed material there was found a large amount of human hair, suggesting the existence of a dermoid cyst of the bladder. Another cystoscopy showed that below the left ureteral orifice there projected a tuft of hair from a calcified base and that almost each hair had a calcareous deposit at its end. Such a picture could be explained only by assuming that a dermoid cyst which lay behind the bladder had broken through into the organ; bimanual palpation however failed to reveal the presence of such a cyst. For a few days after the lithotripsy there was a discharge of hairs in the urine.

The author felt that it would be unjustifiable to attempt removal of the hair mass intravesically, not because the procedure presented any difficulties in itself but because there might result an enlargement of the communication between the bladder and the cyst with subsequent infection and perhaps rupture of the latter. A radical excision of the cyst by laparotomy would seem preferable, but this alternative was refused by the patient. A cystoscopy done at the end of June revealed the presence of two new stones attached to the hair mass. These also were removed together with many of the hairs and another cystoscopy done soon afterwards failed to reveal any trace of stones or hair; the cystitis also had subsided to a considerable degree. Of course it is still too early to say whether any real cure has been effected.

The author has this pathogenetic explanation to offer for the above findings: As a result of fetal isolation of embryonic tissue a dermoid cyst was formed which occupied the true pelvis, below, behind, and to the left of the bladder wall. Owing to the repeated attacks of gonorrhea, this cyst became infected either by continuity or by way of the lymphatics. As a result, the cyst became adherent to the bladder, the adhesions underwent fatty degeneration, broke down, and a communication resulted between the two structures. Hairs grew through the opening into the bladder, and acting as foreign bodies, served as nuclei for the formation of phosphatic stones. It is to be assumed that the entrance of urine into the cyst was prevented by a valve-like arrangement or else some sort of cystocele would have developed.

Heller has analyzed the literature in this connection. There are 16 cases (11 women, 5 men) in which hair or stones were found in the bladder but in which there was no pilimicturition. There are 27 positive cases of pilimicturition (16 women, 11 men). Trichiasis of the bladder may occur without passage of hair in the urine. The hairs have generally but not always the same color as those of the patient; they may be fine or thick and as long as 13 cm. Pilimicturition is always associated with symptoms of severe cystitis: dysuria, pollakiuria. Stones are often present and give corresponding symptoms. The diagnosis is easy after cystoscopy. The author's case is the first in which diagnosis was made by this means in a man. Occasionally the hairs are obscured or surrounded by stones and lithotripsy is necessary to reveal the real condition. X-ray examination may reveal the presence of teeth or bones in the cyst. [It is possible that an X-ray picture of the bladder after injection with collargol may be of service. Such procedures have already proven their worth in the diagnosis of bladder diverticula.—Ed.]

The author does not believe that such procedures as the removal of stones or the extirpation of hairs are of any real therapeutic value. In fact the latter operation, as already suggested, may actually do harm. Radical extirpation of dermoid cysts of the pelvis has as yet

not been attempted in the male. For the present we must be content with palliative measures directed toward control of the secondary cystitis, etc.

2. Congenital Stenosis of the Posterior Portion of the Urethra.

Heinecke describes the case of a 5-year-old boy who was brought to the Herzog Hospital in Braunschweig with the complaint that he had difficulty with urination from birth. The act of passing water took almost half an hour and the urine kept dribbling constantly between times. Latterly catheterization was often necessary. The urine was turbid; the patient pale and weak. There was evening fever.

The patient was anesthetized and catheterized with a metal instrument after some difficulty. Following this procedure there was inflammation of the urethra and subsequent catheterization was for a time difficult. At times the catheter seemed to catch at a point in front of the bladder.

As neither the general nor the local condition (treated by irrigations) showed any signs of improvement a *sectio alta* was performed and the bladder exposed and opened. The organ was trabeculated; its mucous membrane was much inflamed and swollen. The right ureter was not found. The left was seen but did not admit of the passage of a probe; nevertheless much urine escaped from its opening. A soft catheter could be passed downward through the urethra. The wound was drained with a tube and closed with mattress sutures. After operation the temperature rose. The patient became restless, delirious, the pulse weak, and he died on the following day.

At post mortem the drainage tubing was found in place. The bladder was much contracted. The right ureter showed relatively little change but the left was very thick and distended, especially below. The left kidney was enlarged and peppered with abscesses. The kidney pelvis was full of pus. The right kidney showed only a few abscesses.

On opening the urethra its calibre was found normal but there were two crescentic folds of mucous membrane extending from the *colliculus seminalis* forward and diverging, one to attach to each side of the urethral wall. Thus two pockets were formed with their openings facing the bladder. The pathological diagnosis was therefore: Congenital stenosis of the urethra at the point of union between the *pars prostatica* and the *pars membranacea* (crescentic folds), trabeculation of bladder, cystitis. Ascending pyelonephritis with dilatation of ureters and kidney pelves.

The author discusses some of the cases reported in the literature with especial reference to the pathogenesis of the condition. In most cases the secondary ascending infection was more marked on the left side. None of the cases has been improved by operation,—presumably because the diagnosis was never made in time.

3. A Primary Urethral Carcinoma of the Fossa Navicularis.

According to Wolff the fossa navicularis has never been observed to be the seat of a primary carcinoma. The following case of Ottow's is therefore of special interest. The subject was a man of 69 who had had several attacks of gonorrhea in his youth and gave a history of soft chancre complicated by bubo. For the past 4 weeks the patient had noticed a strand-like induration at the end of his penis in the region of the frenulum with accompanying difficulty in urination. Both conditions became worse despite a course of iodides and for the last two weeks there had been a slight purulent secretion from the meatus. Examination revealed a livid discoloration and hyperemia of this region and a drop of yellow pus could be expressed. A hard, movable, slightly irregular strand of the thickness of a little finger could be felt extending inward from the meatus for a distance of 2-3 cm. The frenulum was stretched like a bow over this swelling.

The penis was amputated at the penoscrotal junction under novocain anesthesia. The patient was free of recurrence 6 months after operation. On sectioning the penis it was found that the growth had actually started from the fossa navicularis and was already circling the urethra dorsally and beginning to involve the glans and the corpora cavernosa. Microscopically the growth was a typical epithelioma with polymorphous cells which grew in the usual invasive fashion. Mitoses were not frequent and there were no epithelial pearls.

The author does not believe from a careful analysis of his case, that the history of gonorrheal infection had any etiological bearing upon the development of the carcinoma.

5. Preservation and Sterilization of Flexible Instruments.

Hagen describes a cabinet for the sterile preservation and disinfection of soft catheters, as well as other urologic instruments. The cabinet is made of glass and contains a nickel plate on a sliding bar (to facilitate withdrawal) the plate being perforated in 8 parallel rows, the apertures varying in size according to the Charrière scale. Catheters and sounds of all dimensions from 1 to 30 are passed through their appropriate holes in the plate. Each hole is numbered so that examination of the instrument itself is unnecessary to determine its size. Along the sides of the cabinet there are places for urethroscopes and cystoscopes. The Ulzmann brush can also be kept in this closet. At the bottom are kept watchglasses with trioxymethylen blue powder and calcium chlorid tablets. The bottom of the cabinet is separated from a copper plate by an asbestos lining. By heating the copper plate the chemicals evaporate and the resultant gases sterilize the instruments. A temperature of 60° C. maintained for 10 minutes is sufficient for this purpose.

The following technic of catheter antisepsis is suggested by the

author: After use, catheters should be thoroughly scrubbed with soap and water. They are then immersed in a mercury oxycyanate solution (1-500 to 1-1000), thoroughly rubbed, and syringed through. They are next dried in warm air and hung in the cabinet. Should one desire to use them at once the cabinet is warmed as above described. If they are not to be used until next day (or later) the heating is unnecessary.

ANNALES DES MALADIES VENERIENNES

Vol. VIII., No. 1, January, 1913

1. Toxicity of Neo-Salvarsan for the Central Nervous System. By Jean Camus. P. 1.
2. Recidives of Syphilis after Treatment with "606." By Drs. Gaucher and Lévy-Franckel. P. 8.
3. Arthropathies of the "Tabetic Type" in a Syphilitic, Without Signs of Tabes. By Drs. Gougerot and Meaux-Saint-Marc.

1. Toxicity of Neo-Salvarsan for the Central Nervous System.

Camus has injected neo-salvarsan directly into the cerebro-spinal canal (atlanto-occipital interval) of dogs and rabbits. The results were similar to those obtained with salvarsan, the animals dying after a longer or shorter interval according to the size of the dose employed. The author has also attempted to solve the question as to the influence upon the results of the water and the glass receptacles used in the experiments. He finds that neo-salvarsan prepared with stagnant river (Seine) water boiled in an ordinary tin casserole has even a less toxic action than pure re-distilled water boiled in Jena flasks. He concludes that the theoretical advantage of more direct local action through intraspinal injection of neo-salvarsan is more than offset by the practical demonstration of the toxicity of employing the drug in this manner.

2. Recidives of Syphilis after Treatment with "606."

The authors present a full treatment of the subject (41 pp.). They submit analytic tables of original and previously published cases of recidives following the use of "606" in various stages of the disease, and close their paper with protocols of 52 original observations.

Gaucher and Lévy-Franckel are convinced that Salvarsan alone cannot cure syphilis. Even when administered in the chancre stage of the disease it modifies the course of the malady merely by retarding the appearance of secondary manifestations. The authors quote Kan-nengiesser who found 25% recidives in cases treated while the Wassermann reaction was still negative. Recurrent roseolas and chancres have been observed as well as various kinds of syphilitic recidives including some of considerable severity. The retarding action of the drug is here especially evident and plays its rôle even when a series of injections has been given.

It is now pretty generally admitted that a false sense of security had been given those patients who were treated by salvarsan alone and that much innocent infection was caused in this manner. The authors quote the case of a syphilitic working-man who consulted a specialist in Odessa and was given treatment with arseno-benzol. Recidives developed however and the patient was so enraged that he fired at and killed his physician while the latter was examining his blood.

Recidives may appear in patients already in the tertiary stage. In respect to the effect of salvarsan treatment on the Wassermann reaction, the latter may be positive, but even if it is negative it cannot prevent the occurrence of recidives. It should be pointed out however that with the improved antigen of Desmoulière [previously described in abstracts appearing in this journal for January, February, March, of this year — Ed.] a positive reaction can be obtained where the original procedure gives a negative or doubtful result. This of course helps explain the discrepancy in the appearance of recidives after a "negative" Wassermann reaction.

The authors conclude that 606 is merely a cicatrizing agent. It acts exclusively on mucous or cutaneous lesions, rapidly it is true, but it accomplishes nothing more. It has no effect on visceral lesions. The authors emphasize the inefficacy of this treatment in tabes in view of the present exploitation of these unfortunates. Gaucher and Lévy-Franckel agree with Dreuw of Berlin when he says: "The intravenous injection (of arsenobenzol) cannot replace mercury in the thorough treatment of the disease. However the former may be used in cases where mercury and iodides cannot be employed or are refused by the patient. The combination of mercury with 606 veils any recidives which may result and interferes with an accurate appreciation of the action of 606." This drug can be used only when the viscera (liver, kidneys, the nervous system, eyes and ears) are normal and then only with great circumspection for it can produce irremediable lesions when used even in very small doses.

3. Arthropathies of "Tabetic Type" in a Syphilitic without Signs of Tabes.

Gougerot and Meaux Saint-Marc describe the case of a syphilitic of 12 years' standing who had had marked enlargement of both knee joints for the past four years. The articulations were globular in shape, painless, with crepitations and lateral mobility just as in cases of tabetic arthropathy. There was, however, absolutely no sign of tabes, the cerebro-spinal fluid showed no lymphocytosis and the Wassermann reaction (both blood and cerebro-spinal fluid) was negative.

The authors offer the following explanations: (1) The condition may be after all a tabetic arthropathy, the only present manifestation of a (monosymptomatic) tabes which would show further symp-

toms later. Against this hypothesis there is the absence of gross bony changes as shown by X-ray, the long period of development of the lesions, their symmetry, the absence of cerebro-spinal lymphocytosis, finally the fact that these arthropathies took four years to develop whereas tabetic arthropathies most commonly begin abruptly following insignificant traumatisms.

(2) The condition may be a syphilitic arthritis. This may indeed be so, despite the negative blood Wassermann and the thus-far inefficient specific treatment.

(3) Finally the process may be a chronic arthritis, neither tabetic nor syphilitic, in a syphilitic subject. For example it may be a very chronic tuberculous arthritis without pain or contractures, or better still a variety of that etiologically ill-known group called "chronic arthritis." This was the opinion of Marie, Dejerine, and Gilbert Ballet, who saw the case and called it chronic arthritis because of the symmetry of the lesions and the co-existence of some slight deformities in the joints of the hands and fingers.

MISCELLANEOUS ABSTRACTS

New Treatment of Gonorrhea in the Male.

Müller (*Deuts. Zeit f. Chir.*, v. 118, 1912), points out the irrationality of hoping to cure gonorrhea, or even to prevent an acute infection of the anterior urethra from spreading backward, by the present methods of injecting from the meatus inwards toward the bladder. He suggests a plan which, pursued vigorously for 1-3 days, will prevent the spread of the disease deeper, will kill the gonococci, and will mechanically wash them out. Under local anesthesia Müller inserts a Kuttner trocar into the distended bladder through a median puncture made just above the symphysis. Through the canula a soft rubber catheter $2\frac{1}{2}$ mm. thick is introduced, and the canula withdrawn. The catheter is fastened to the abdominal wall and is connected with an irrigating system so that 100 c.c. of solution can pass into the bladder every 5 minutes from a height of 2 meters. Both a gonococcus-killing drug, such as a weak solution of argyrol, and an astringent, such as potassium permanganate (1:3000) should be used. From 200 to 300 c.c. are introduced at a time, the patient is then ordered to urinate, and the procedure repeated 20 to 30 times a day with 6-10 liters of fluid in all. As soon as the gonococci disappear from the urethra the catheter is removed.

Use of an Adhesive Mixture in Examining for Spermatozoa.

Solger (*Dermatol Zntzbl.*, No. 11, 1912) has found that in examining old spermatic fluid for spermatozoa the latter may be washed away in the process of staining the preparation. He therefore suggests that before staining the dry smear, the latter be coated with a mixture of collodion and ol. ricini, 2:1, as previously suggested by Strasser. The oil is then removed with alcohol and the latter washed

off or simply allowed to evaporate. An examination of the unstained specimen should always be made first.

Artificial Impregnation in Bilateral Epididymitis.

Rohleder (*Deuts. med. Woch.*, No. 36, 1912) imposes the following conditions as necessary for successful impregnation: (1) The operation should be undertaken preferably within one or two years after the epididymitis; (2) Fluid obtained directly from the testicle should be examined to see whether there are well formed spermatozoa and in sufficient numbers (their immobility is quite normal); (3) Spermatic fluid obtained preferably by massage of the prostate should be examined, (a) for gonococci, (b) for characteristic odor, (c) for Böttcher's crystals, (d) after addition of prostatic fluid, for motility of spermatozoa. If the above conditions are satisfactorily fulfilled, artificial impregnation is likely to be fruitful.

BOOK REVIEW

DIABETES: ITS PATHOLOGICAL PHYSIOLOGY. By John J. R. Macleod, M. B., Ch. B., D. P. H., Professor of Physiology, Western Reserve University, Cleveland, O., late Demonstrator of Physiology, London Hospital. Pp. 224, \$3, Longmans, Green & Co., New York.

The subject-matter of this volume formed the theme of a series of eight lectures delivered during the summer session of 1912 in the Physiological Laboratory of the University of London. No attempt is made to review the entire field, attention being given only to those investigations that bear on the nature of the abnormal conditions in the body that are the cause of the disease. Chapters on examination of the urine for traces of sugar, on the behavior of sugar in the blood, and on assimilation limits, have been included. The recent work on the chemical processes involved in the production of sugar out of protein and fat is reviewed, but the subject of diabetic coma is omitted, as little new light has been thrown on this condition by recent experimentation. The gist of the literature on glycogenesis and the pathology of diabetes is given, but the basis of the book is the researches of the author and his co-workers, which have led particularly to the elucidation of the control by the splanchnic nerves of the glycogenic function of the liver.

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SOME INDICATIONS FOR SUPRAPUBIC CYSTOTOMY, WITH ILLUSTRATIVE CASES

By LOUIS GODARD, M.D., Amiens, France.

RETENTION, infection, hematuria and pain are four complications common to numerous affections of the urinary apparatus, and thus the indications for suprapubic cystotomy are also numerous. It may be utilized in emergency for certain complications arising in prostatic hypertrophy, in neoplasms of the lower urinary tract, in complicated urethral stricture, in trauma of the genital organs, in the cystitides and perhaps in certain affections of the kidney.

But these applications, so numerous and varied, are only exceptionally indicated, either because some of these affections are themselves very rare, or because the operation is an interference which should not be employed unless there has been a failure of other therapeutic measures.

There are some of these affections, however, where suprapubic cystotomy is indicated frequently, first of which may be mentioned traumatism involving the urethra. Often this operation is necessary in rupture of the urethra, no matter where the seat of the lesion is. Usually these patients have retention and catheterization is rarely practical. In the same way external urethrotomy, when it is indicated, is far from always allowing the surgeon to find the posterior end of the ruptured canal, as the following case illustrates.

CASE I. Male, act. 35 years, fell astride an iron bar and ruptured the urethra. When brought to the hospital there was retention, and an enormous ecchymosis was found in the perineum. The bladder was distended and catheterization failed.

A perineal incision was then made in order to introduce a sound into the bladder. The urethra was ruptured in the entire extent in its perineo-bulbar portion but very far back. The posterior end of the canal could not be found, so suprapubic cystotomy was at once done in order to do a retrograde catheterization and also to drain the bladder.

The operative results were simple and the perineum and hypogastric opening were healed in three weeks. The patient passes a sound from time to time.

Often, also, external urethrotomy is contraindicated or not to be recommended in rupture of the penile urethra or deep urethra.

CASE II. Male, 50 years of age, received a blow on the perineum following a fall astride a fence, resulting in a rupture of the membranous urethra. The patient did not urinate after the accident, there was complete retention, bladder distended and catheterization impossible.

A suprapubic cystotomy was done at once, followed by retrograde catheterization; a permanent catheter was left in and the bladder drained, a perfect cure was obtained in three weeks.

CASE III. Male, aet. 35 years, entered hospital for a violent trauma to the perineum. He passed blood by urethra and presented an ecchymosis of the perineum and scrotum. General condition fair, rapid pulse, weakness.

At the end of six hours the bladder protruded under the abdominal walls in the suprapubic region and there was a violent desire to micturate. Puncture of the bladder withdrew about $\frac{3}{4}$ of a litre of slightly bloody urine. The next day there was evident infiltration of urine in the scrotum on the right. The patient could not void urine and refused catheterization on account of the pain.

Suprapubic cystotomy to divert the urine, after which the general condition became better, but the temperature went up to 39° C.

On the fourth day a median perineal incision was made in order to empty the uropurulent liquid in right inguino-scrotal region and then to discover that the urethra was ruptured on the right side by fracture of the pelvis. A permanent catheter was easily introduced and the healing was rapid, so that the patient was discharged at the end of a few weeks.

Under such conditions suprapubic cystotomy renders great help. Not only does it remedy the urgent symptoms but also prevents infiltration of urine and puts the urethra at rest. In the case of perineal wound created by an external urethrotomy, it assures a more rapid cicatrization by diverting the flow of urine, which is a sufficient advantage for preferring it to immediate suture of the bladder after retrograde catheterization has been accomplished. Then in those instances where this operation is at once done, cystotomy will in itself result in a complete cure as is made evident by Case II.

It is also now well known that a ruptured or wounded bladder demands immediate operation and there is hardly any surgeon who would bother with a permanent catheter which only controls part of the situation and is time lost. Perineal section is also to be rejected for the same reasons and is only indicated when combined with suprapubic drainage in cases where infiltration of urine complicates the case, and where a rupture of the urethra has occurred at the same time as that of the bladder.

To interfere by suprapubic cystotomy in these cases is the principle generally admitted at the present time, this to be followed by suture of the ruptured walls whether the rent is intra or extraperitoneal.

It is also indicated to open the bladder suprapubically for drainage when the wound of the bladder cannot be sutured, when it is very large as in certain cases of anterior vesical rupture; when there is a difficult access, as in posterior rupture near the apex of the bladder neck; or when the borders of the rent are too lacerated or friable; or when there is urinary infiltration with infection. In cases of infiltration or infection following suture it is imperative.

Let me add that the state of weakness following shock, hemorrhage or infection may contraindicate suture and then suprapubic cystotomy alone, followed by secondary cystorrhaphy as soon as the patient's condition permits, is the proper line of treatment.

At the present time it is the rule to surgically interfere in cases of *obstinate chronic cystitis*, when the lesions cannot be controlled by catheterization, instillations, irrigation, etc. The condition is rarely so imperative as to require immediate suprapubic cystotomy, but if it is prolonged operation should be advised.

The operative treatment is preferably a suprapubic cystotomy, no matter what anatomical variety of cystitis, if the symptom pain preponderates over all others.

Dilatation of the neck of the bladder in the female, which has been resorted to, combined or not with curettement of the bladder, has been given up as insufficient. Colpocystotomy, although both simple and efficacious, does not permit of a methodical examination of the vesical mucosa nor to give an exact idea of the lesions. Then, too, the condition of the woman with a bladder opening into the vagina is far worse than one with an hypogastric opening.

As to perineal section in the male, followed or not by curettement of the bladder, it gives good results, but cannot be done in subjects having an enlarged or cancerous prostate. There is much danger of wounding the vas deferens, and an easy and complete exploration of the vesical mucosa is well nigh impossible.

Suprapubic cystotomy, without presenting these drawbacks, has a marked action upon pain and in all cases where it is resorted to suffering disappears or is at least greatly improved.

CASE IV. Female, aet. 37 years, married. Gonorrhea contracted eighteen months ago and necessitating an incision of the vulvovaginal gland, then curettement for an old fungous metritis; returned to the hospital with a severe cystitis. Irrigations and instillations with silver nitrate for two months with slight improvement. The patient was then lost sight of.

Some time later she returned for violent pain which could not be calmed; constant tenesmus and dysuria. Walking is difficult and there is hypogastric pain even with rest. Urine purulent; polyuria (two to three litres in 24 hours).

After a trial with rest, hot injections and vesical instillations for three weeks, without result, suprapubic cystotomy was done.

The immediate result was good; the pain at once disappeared. The suprapubic fistula closed in three months spontaneously. The patient, seen about a year later, had remained free from pain, although the urine was still somewhat purulent.

If the cystitis is calculous or set up by some other foreign body, suprapubic cystotomy followed by drainage is preferable to lithotripsy if the patient is seriously infected, if the bladder is very painful and irritable, and when there is considerable hematuria or a very large calculus.

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CASE V. Male, aet. 25 years, entered hospital complaining of difficulty at micturition and bloody urine. At the age of ten years he had violent desire to urinate and since then micturition has become difficult and the last urine voided is cloudy with a deposit of sand. Sometimes there is blood.

At present very severe pain occurring in paroxysms located in the bladder and perineum, and for some time past the pain has been particularly acute at the end of urination and after the act, so much so as to cause an occasional syncope. The bladder cannot be emptied completely, and usually after a few seconds the jet stops suddenly with severe pain. Desire to urinate every ten minutes.

Passage of the sound is difficult and after much difficulty a large calculus could be detected. The urine contained blood, mucus and a little pus but no albumin. Kidneys healthy, temperature normal.

On account of the very painful cystitis and the very large size of the stone suprapubic cystotomy was done. A large phosphatic calculus measuring $0.05 \times 0.04 \times 0.01$ centimetres was removed. Drainage. Twenty days after the operation the small suprapubic fistula had closed and the urine was perfectly clear.

If the cystitis is varicose in nature suprapubic section will allow one to deal directly with the vessel giving rise to the bleeding, as in the following case.

CASE VI. Male, aet. 60 years, usually in good health having had no former urinary disturbances. Eight days ago a spontaneous hematuria suddenly occurred; it was severe but without pain and disappeared by rest. Eight days later another hematuria took place which brought the patient to the hospital.

This last hematuria was so serious that it had produced a severe anemia and likewise caused a total vesical retention accompanied by intolerable pain. An attempt to pass a catheter was fruitless.

The same condition persisted the following day so that a suprapubic cystotomy was immediately done. The bladder was distended by enormous clots and, after emptying, a small ulceration on the left and in the back, due to the rupture of a varicose vein, could be seen. The bladder walls were otherwise healthy.

Recovery was rapid. The hemorrhage stopped and did not recur and five weeks later the patient was discharged cured, with the suprapubic opening closed. Seen a year later, the patient had remained perfectly well since.

Vesical tuberculosis being rarely if ever primary, direct or local treatment must be limited if the prostate and seminal vesicles are the source of infection, and it is to these organs that a curative operation should be directed, such as prostatectomy or nephrectomy if the trouble is in one kidney. The only indication for cystotomy is in serious cases, with advanced lesions beyond hope of cure. Its only object is to relieve the pain and certain symptoms, such as frequency in micturition, hematuria and infection associated with the tuberculous process.

CASE VII. Male, act. 59 years, entered hospital complaining of urinary disturbances dating back three years. Never had gonorrhea. About a week previously a catheter was passed for retention.

The bladder was found distended, prostate normal in size, testicles and epididymes healthy. Temperature 39° C., tongue dry, hoarse voice, yellow tint of the integuments indicating a profound urinary cachexia. Passage of catheter unsuccessful, bringing back only a little blood. It caused an exacerbation of sharp pain which had been continuously present.

Suprapubic cystotomy revealed edema and infiltration of the prevesical layers, a cul-de-sac adherent to the pubis and infected urine in the fundus of the bladder. The neck of the bladder irregular and rough and large pieces of necrotic tissue were found floating in the vesical contents.

The operative results were excellent. The pain ceased immediately. Five weeks later the patient left the hospital with a suprapubic fistula but very greatly improved. Five weeks later he returned with a tuberculous ulceration of the suprapubic meatus, but he did not suffer up to the time of his death, six weeks later.

If the lesions do not appear to be totally incurable, curettage of the vesical cavity, cauterization of the mucosa or extirpation of all the diseased mucous membranes may be attempted. Here, as in the case of painful cystitides, if a cure can be brought about by a temporary fistulization of the bladder, often also the artificial meatus must be permanent.

As in vesical tuberculosis, the indications for suprapubic cystotomy in neoplasms of the bladder are to-day just what they were at the time of the publications on this subject by Albarran, Clado, Poncet, Faure and others, with this restriction, however, that they are less frequently presented on account of the progress made in operative technique.

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It is now admitted that no matter what may be the nature of a vesical neoplasm, no delay should be allowed before opening the bladder, because this will do away with the alarming accidents of retention, infection, hematuria and pain and at the same time the neoplasm can be removed. This combination of exploratory cystotomy and a radical operation applies to operable growths, but the former operation may be called for even when the tumor is inoperable.

In closing I would just mention as a possibility suprapubic cystotomy for cancer of the urethra and tuberculosis of the prostate with such extensive lesions as to contraindicate prostatectomy.

OF THE AMERICAN JOURNAL OF UROLOGY

SOME PLASTIC OPERATIONS ON THE PENIS AND URETHRA.

By H. A. FOWLER, M. D., Washington, D. C.

THE following three cases of plastic operations on the penis and urethra have been selected from among the cases of this kind occurring in our clinic at Freedmen's Hospital because they illustrate in a convincing way the good results which may be obtained in this class of cases by relatively simple operations. They also illustrate incidentally, and in a very striking way, the serious results which too often attend the improper treatment of strictures of small caliber.

It is perfectly astonishing what abuse the urethra will sometimes suffer at the hands of the inexperienced and incautious and yet no serious complications follow. It is quite as striking to note at times how a slight trauma is followed by complications of the gravest character which result in extensive destruction of tissue, deformity, and at times irreparable damage. It is in the treatment of strictures of small caliber that one most often sees the unfortunate results of injudicious instrumentation. The cases I wish to report illustrate one type of this class and the methods adopted for the repair of the damage done.

CASE 1. Stricture of the urethra. Extravasation of urine. Extensive sloughing of the urethra. Plastic repair.

M. W., aged 32 years, was admitted to Freedmen's Hospital complaining of inability to void. He was first seen about midnight and immediately operated upon. Examination showed a black gangrenous scrotum, swollen to nearly the size of a child's

head. The extravasated urine extended into the perineum and up on to the pubes. The penis was greatly swollen but the tissues were not gangrenous. A small *bougie à boule* was passed. This apparently reached the bladder. This was followed by a small silk catheter, which also apparently reached the bladder, but only a few drops of urine were obtained. The operation consisted in making multiple incisions over the pubes and into the scrotum. The latter was so gangrenous and necrotic that it was quite completely removed, leaving the testicles, with the tunica vaginalis unopened, completely uncovered and exposed. In view of the apparent patency of the urethra and of the extensive, sloughing wound, perineal drainage of the bladder was not deemed necessary or advisable.

Two days later a second operation became necessary. In the meantime the patient was unable to void freely, the extravasation of urine was extending and had reached the tuberosities of the ischium and the gluteal region on the right side. At the second operation the perineum was split longitudinally to the rectal sphincter. The tissues were distended with urine. The bulb was necrotic, there was no bleeding from it whatever, and the whole bulbous urethra together with the scrotal urethra was a soft, sloughing mass and was removed by simply scraping it away by blunt dissection. The opening in the triangular urethra was found, the bladder opened and drained by a large retention catheter. Free drainage of the infiltrated tissues over the tuberosities was secured by free incisions.

As a result of the two operations a very extensive area was left to granulate. The condition of the patient at this time was such that recovery was hardly expected. However, he reacted surprisingly well, and in the course of the next few weeks the wound had so far contracted down that the problem of some plastic operation for the restoration of the urethra presented itself. At this time the edges of the wound had contracted down so that the testicles, which were held up close to the external ring, were covered in with normal skin over about half their surface. The perineal wound was reduced to a narrow strip of mucous membrane about one centimeter wide extending from the drainage tube posteriorly to a point three inches from the meatus, where the uninjured segment of urethra began. On either side of this narrow strip of mucous membrane, which represented the roof of the destroyed urethra, was a narrow line of granulation tissue. The problem presented was to reconstruct a portion of the urethra to

fill in the gap between the uninjured urethra in front and the posterior urethra, a distance of about four inches. As a basis for this reconstruction there was the portion of the roof of the destroyed urethra still remaining.

The reconstruction was accomplished in two stages. First, plastic reconstruction of the urethra by a double flap from adjacent skin surfaces; second, closure of the drainage canal and union of this with the newly formed urethra by a second plastic operation.

Stage 1. An incision was made on one side parallel to the edge of the wound and close to the line of granulation. This extended from the posterior end of the uninjured urethra in front to a point on a level with the opening occupied by the drainage tube in the bladder. At either extremity of this incision a lateral incision was made about three and one-half centimeters long. The flap thus outlined was dissected up AWAY from the urethra, comprising the whole thickness of the skin. A similar parallel incision was made on the right side of the urethra but three and one-half centimeters from it. At either extremity of this incision a lateral incision was made extending to the line of granulation tissue. This flap was dissected up TOWARD the urethra. Over a catheter introduced through the meatus and lying along the groove formed by the remaining strip of mucous membrane, flap number two was turned backward with the skin surface next to the catheter and sutured in place with interrupted fine silk sutures. This flap was to form the floor of the new urethra and presented a skin surface toward the lumen of the new canal. Flap number one was now brought over by sliding and stretching to cover in the raw surfaces and was held in place by fine silk sutures. The catheter was allowed to remain in place, protruding from under the posterior edge of the flaps. The skin partially covering the testicles was dissected up and brought together in the midline, covering in a part of the denuded urethra. The testicles and the granulating area between them were thus completely covered in. This completed the first stage.

Stage 2. In the healing of the wound after the first operation there was some retraction of the flaps, which lengthened somewhat the space between the posterior end of the new canal and the opening which drained the bladder. The catheter which had served for drainage through the perineal wound was now replaced by one introduced through the meatus and passed on into the bladder. By suitable incisions flaps were dissected upon either

side of the urethra still remaining uncovered, and these were united over the catheter. The retention catheter was allowed to remain in position ten days, at which time it was removed and the urine allowed to pass through the new urethra. A small fistula formed at the site of the perineal drainage wound, which healed rapidly by granulation and was completely closed in a short time.

The results obtained were astonishingly good. From time to time sounds were passed to insure the patency of the new canal. Number 26 F. sound was passed with ease. There was no tendency to contraction or stricture formation. Urination was normal in every respect except for frequency due to diminished bladder capacity. This has improved under treatment. The following note was made in April, 1911:

"The scrotum and perineum looks and feels perfectly normal. The scrotum is small and keeps the testicles well supported. The scar from the operations is seen only by very close inspection. Urination is normal except for some frequency, about every two hours. The stream is full and strong. A Buerger cysto-urethroscope was introduced with ease. There was no stricture. The reconstructed urethral floor is lined by moist horny epithelium and is devoid of blood vessels. It has a peculiar white parchment color which is very striking in contrast with the normal urethra in front. In the region of the bulb several long hairs are seen projecting from the floor and coiled up in the lumen of the urethra. These cause no symptoms and the patient is unaware of their presence. There is marked injection and inflammation of the posterior urethra. Examination of the bladder is unsatisfactory on account of the diminished capacity and the length of the beak of the instrument. The result has been very satisfactory and the patient is particularly pleased.

CASE 2. Stricture of the urethra. Periurethral abscess. Phlegmon of the penis and scrotum. Extensive sloughing of the covering of the penis.

R., colored, aged 35 years, was admitted to Freedmen's Hospital in 1906. On admission the temperature was 102 and pulse 120. He was extremely ill and operation was performed immediately. The scrotum was greatly swollen, black, and gangrenous. The penis was enormously swollen and the tissues covering it were necrotic. A membranous, valve-like stricture of small caliber was found in the bulbous urethra. This was readily dilated to admit a Number 16 silk catheter. The usual multiple incisions were then made in the scrotum and over the pubes. The

scrotal tissues were not as necrotic as in case one and their removal was not necessary. The skin covering the penis, however, was sloughing extensively and was completely removed except for a narrow strip about two centimeters wide on the right side. At the base of the penis in the region of the suspensory ligament a periurethral abscess was opened and several drams of pus evacuated.

The incisions in the scrotum and over the pubes granulated promptly with practically no sloughing. A fistula developed at the site of the abscess and discharged urine for two weeks. This closed itself as the wound granulated. The stricture, meanwhile, was gradually dilated to admit a number 30 F. sound readily. The entire penis from the corona to the base was completely denuded of skin except for a narrow strip along one side, not over two centimeters wide. The problem then was to cover in this granulating area and preserve to the patient a useful organ. Having considered several methods it was finally decided to adopt the simplest one and cover in this area by a skin flap from the scrotum. Accordingly a rectangular flap was marked out on the scrotum of proper size to cover the wound with its base at the base of the penis. This was dissected up, leaving only a narrow line of attachment, and readily rotated into position where it was held by interrupted sutures of fine silk. The area was prepared to receive the flap by cutting down close all granulations and checking hemorrhage by pressure. The wound was dressed with silver foil.

The flap united perfectly everywhere except at the base where there was a slight separation due to too great tension. This healed rapidly by granulation. The result was perfectly satisfactory. In the course of a few weeks the transplanted skin became freely movable on the tissues beneath, there was no deformity, and the results from the standpoint of function and cosmetics left nothing to be desired.

CASE 3. Stricture of the urethra. Phlegmon of the urethra. Sloughing of the corpora cavernosa. Obliteration of the urethra.

L., aged 29 years, was admitted to Freedmen's Hospital complaining of a swollen penis and inability to urinate. Examination showed an enormously swollen penis, hard, infiltrated, and the skin black and gangrenous. The scrotum and perineum was not involved. The body of the penis was enormously swollen, infiltrated, and could be followed back through the scrotum to the

attachment of the crura as a hard, indurated mass. At a point two inches behind the frenum a fistula had formed through which all the urine was escaping. At the frenum was another fistulous opening communicating with the urethra. Perineal section was performed at once. The perineal urethra was dilated. On cutting down on the fascia covering and inclosing the corpora cavernosa this was found to be of a slaty color and manifestly necrotic. An incision was therefore made into and through the corpus cavernosum on each side so that each of these bodies was split longitudinally for a distance of about four inches. There was absolutely no bleeding from these incisions, the whole penis appeared to be necrotic and it was thought it would slough away.

For a week or more the penis was a sloughing mass, the discharge was profuse. There appeared to be no healthy tissue remaining, so that complete removal seemed to be the only thing left to do. This the patient begged us to do. He was sent to the operating room for this purpose, but in cleaning up the wounds under an anesthetic it was evident that there was some healthy tissue still remaining. Accordingly further operation was postponed in order to see how much, if any, of the penis could be saved. Much to our surprise the sloughs finally separated leaving healthy granulating wounds in each of the longitudinally bisected corpora cavernosa. The retention catheter was removed, the perineal wound rapidly closed, and the urine now escaped through the incision in the right corpus cavernosum. Nothing could be passed through the first two inches of the urethra, either through the meatus or by retrograde instrumentation through the perineal wound.

The incision into the left corpus healed rapidly; that into the right contracted down to a relatively small opening through which all the urine was escaping. The gradual contraction of this wound made urination increasingly more difficult. Some procedure was necessary, therefore, to re-establish the patency of the anterior segment of the urethra and divert the urine through its normal channel. Two courses presented themselves for accomplishing this end: (1) transplanting a segment of a blood vessel or an appendix or some other tissue to form a new urethral segment lined with mucous membrane, or (2) to tunnel through the tissue in the hope that some remnant of the urethra might be found which would serve as islands of mucous membrane from which the canal thus formed would eventually become lined with mucous membrane. For certain reasons the latter course was

adopted. The perineal urethra was again opened and the urethra followed to the point where it opened on the side of the penis. Search was made for some vestige of the urethral mucous membrane anterior to this point, but none could be found. The obliterated segment was then tunnelled through to the meatus, the canal dilated to 30 F., and united to the outer end of the healthy urethra posteriorly. The wound through which the urine had been escaping was then closed by sutures. Healing was prompt. Removal of the retention catheter was followed by normal urination through the meatus.

It is to be noted that this newly formed urethra, comprising a segment of about two inches, was made by merely tunnelling through the tissues and dilating to 30 F. There was no epithelial lining, and as might be expected contraction took place at first rather rapidly. The lumen at first was maintained very satisfactorily by dilatation every ten days. During one much longer period when he was unable to come for treatment contraction had taken place to such a degree as to interfere with urination. Dilatation had to be done under an anesthetic. Since that time the channel has been kept well open by the passage of sounds. At the present time these are passed once a month. This is quite sufficient to keep the urethra from recontracting. He voids a large stream. So far there is no appreciable evidence of the growth of epithelium into this segment from either end, and it seems doubtful if such will occur. However, it is barely possible that the formation of an epithelial covering may occur from such an overgrowth from the normal epithelium. Further progress of the case will be watched with interest, as the patient has consented to a further plastic operation if this is found necessary and advisable.

This is the only case of phlegmon of the penis involving the corpora cavernosa and causing extensive necrosis which has come under my observation. Extensive destruction of the superficial tissues in these cases of stricture with phlegmon is common, but involvement of the corpora cavernosa must be very unusual. In all these cases the history shows that the condition was the direct result of the injudicious use of instruments in dilating a stricture of the anterior urethra. Considering the number of cases seen in the clinic of stricture with various complications due to this same cause, this particular complication must indeed be rare.

REMOVAL OF A MASS OF CHEWING GUM FROM THE BLADDER *

By JOHN O. RUSH, B.Sc., M.D., Mobile, Ala.

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THE following case is sufficiently unusual to be of interest: J. P., 27 years, single, February 9th felt itching in urethra, used syringe and warm water for relief.† This was ineffectual. Patient was chewing gum at time. Rolled the gum into a long roll and pushed it into urethra, expecting this to relieve condition. This caused an erection, and gum slipped into bladder. After entering bladder it produced severe pain and cramp, which soon was followed by bloody urine. February 10th, urine bloody, cramps more regular, and painful. February 11th, same as on previous day, but aggravated.

February 12th, patient admitted to hospital. Patient catheterized, specimen bloody, containing quantities of mucus. Temperature 38.3 C, pulse 90. I cocaineized the urethra and attempted to cystoscope the patient, but when cystoscope entered the bladder the pain was so excruciating cystoscopy was discontinued until the morrow. February 13th, patient given ether, cystoscopic examination repeated. Bladder first irrigated three times with warm boric solution, each time returning with long strings of mucus. In the center of the floor of the bladder is seen through the cystoscope a large piece of gum curled upon itself at one end, in shape somewhat like a "love knot."

It was our intention to remove this piece of gum through the cystoscope, and a Garceau cystoscope which carries a 18 French catheter was used. A silver wire with a hook made on one end was passed through the catheter. The gum caught in the hook, but each time tore loose. It was soon found it would be impossible to break the gum up sufficiently small to admit its passage through the cystoscope, so a suprapubic cystotomy was de-

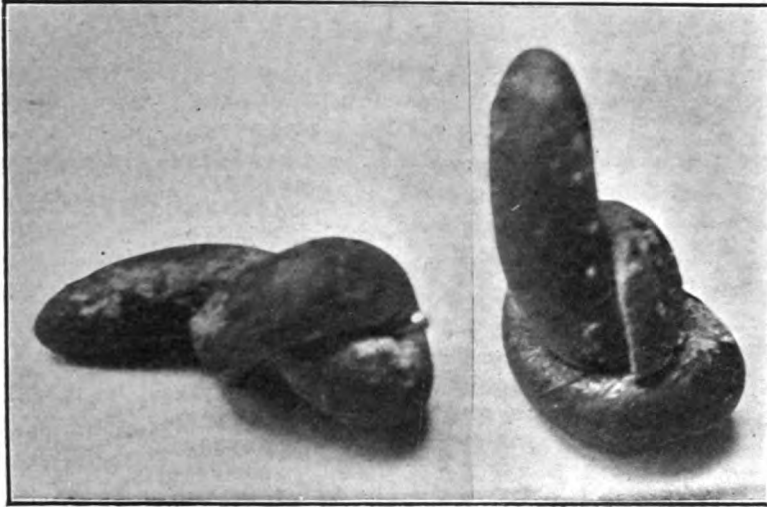
* Read before the Mobile County Medical Society, March 20, 1913.

† This is what they all claim, either that they had an itching or burning in the urethra or that they were unable to urinate and thought by inserting some foreign body to relieve the condition. But of course there is not the slightest doubt that in the vast majority of such cases, if not in all, the real object of introducing the foreign body in the urethra is masturbation. Many masturbators cease to derive any satisfaction from external manual manipulation and so have recourse to endourethral masturbation.

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cided upon and the patient returned to bed. February 14th, patient etherized, and suprapubic cystotomy performed; large mass of chewing gum removed from bladder. Bladder sewed up with cat gut, gauze drain put into pre-vesicle space, skin wound



Photograph of gum as it appeared from cystoscopic picture, lying on floor of bladder.

Another view of gum showing how contraction of bladder twisted the small end of the gum upon itself.

closed with silkworm gut, a gauze dressing put over this, and a retention catheter placed in his bladder.

It will be seen that the gum is curled upon itself as though some one had tied it, but it was taken from the bladder in exactly the shape shown here. The accompanying photograph represents the exact size of the gum. The gum had only been in the bladder four days, and you will notice urinary salts deposited upon it already, showing that if not removed, the gum would have formed the nucleus for a large calculus. On March 1st the patient was up and practically well.

MASTURBATION — INJURIOUS OR HARMLESS?

By WILLIAM J. ROBINSON, M.D., New York.

THE profession knows my viewpoint on masturbation. I have expressed myself more than once on the subject. While of course not believing in the lurid exaggerations of the older physicians and of the present-day quacks, I nevertheless maintain that masturbation as a general thing is a weakening, debilitating habit, and when indulged in to excess may produce even dangerous results. I am not basing my conclusions on hearsay or on the writings of other authors, but on personal, carefully analyzed experience. I have seen too many cases of sexual impotence, spermatorrhea and severe sexual neurasthenia for which I could find no other etiology than that of excessive masturbation. And while I do not become hysterical over it, and do not consider it a deadly sin or a vice, I do consider it hygienically injurious, and do all that possibly can be done to break my patients of the habit and advise parents to do all that lies in their power to prevent the habit from developing in their boys and girls, and to use the most energetic curative measures if the habit has already become established.

It is fair, however, to say that no unanimity has been reached by the medical profession on the subject of masturbation, that there are some who do not consider the habit injurious at all except if indulged in to great excess. There are even others who consider the practice of masturbation a useful hygienic measure, in many cases indispensable, as the sole or best substitute for natural sexual relations.

Dr. William Stekel of Vienna is one of these. In a recent paper he expresses himself unequivocally on the subject. The paper presents so many striking and novel views that, believing as I do in hearing all sides, I believe it is worth while to present the gist of it to the thinking part of the medical profession.

Dr. Stekel says: "I am of the opinion that all people *without exception* masturbate and that masturbation is a physiologic process indispensable to the youthful individual of a certain age. I go even further and assert that masturbation is also indispensable for many adults, because it presents to them the only adequate form of sexual satisfaction."

Before presenting the chief results of his investigations he re-

ports the following case which he saw recently. A woman consulted him for insomnia. The insomnia was of the variety which is often observed in anxiety-neurosis. She falls asleep readily, but wakes suddenly with palpitation of the heart and with a severe feeling of anxiety, tosses about for hours on the bed and cannot fall asleep again, and all kinds of confused thoughts run through her head. She believes that her suffering is probably the result of masturbation, which she has practiced from her youth up to within a few months ago; she knows through physicians and books that she has completely ruined her nerves by this vice and she reproaches herself violently. Her husband knows nothing of this insomnia. She is afraid to confess to him her trouble, for she thinks that he would surely guess its cause. Recently there has become associated with the insomnia a painful brooding. She is always thinking how happy she could be if she had not masturbated. Mentally she is making the severest reproaches to her mother because she did not enlighten her and hold her back from the vice. She is struggling with thoughts of suicide and says she does not wish to live any longer if the doctor cannot procure her sound sleep.

According to Dr. Stekel this case is typical and shows plainly how cause and effect are often confused. When people who masturbate much cease to masturbate they become afflicted with an anxiety-neurosis. "These people," says Freud, the discoverer of this fact, "have become unable to bear life without masturbation."

This patient was also well as long as she masturbated. The insomnia and the brooding set in only several weeks after the breaking off of the habit, and this observation can be made repeatedly; people become sick because they have *given up* their masturbation, and the physicians then always state that they were sick *because* they had masturbated. If the latter is the case, asks Dr. Stekel, then why does the anxiety-neurosis make its appearance so seldom during masturbation and so regularly on giving up the habit?

"In a paper on suicide," he says, "I have shown that most suicides are people who are fighting a battle against masturbation, and to whom life without masturbation is worthless and life with masturbation has become impossible on account of the associated fear and self-reproaches. This patient also thought of suicide. Now there is an important law in psychic life, the law of retaliation: *Nobody kills himself who did not want to kill somebody else.*"

To us the above seems just a little absurd, but the author

proceeds with the case. He explained to the patient the harmlessness of her moderate masturbation but the explanation was powerless against her intense feeling of guilt. The insomnia did not yield, the feeling of guilt did not diminish, the brooding and reproaches kept on without end. He was therefore forced to search the deeper psychogenic roots of the neurosis and learned the following: Two years ago the lady had a shock. She had been married to a man ten years older than herself, of weak sexual power. After coitus she used to masturbate in order to reach the orgasm. The husband's relations with her became rarer and rarer and he gave as an excuse for this his neurasthenia, which did not permit him frequent intercourse. She submitted to the alleged order of his physician, and it came to intervals of several months. One day the chambermaid came to her and gave her notice that she could not remain in the house any longer as the "boss" gave her no rest; he had been pursuing her for several months and now she had no other way left to guard her chastity but to leave. The result of this was naturally a series of terrible scenes. She wanted to get a divorce and refused the penitent husband her favors absolutely. What hurt her most was regret over her past. She was a beautiful, charming woman, who had been courted by many men, and who had frequent opportunities to sin. Her first thought was to have revenge on her husband by giving herself to another, but she already had grown-up children and should she now at the age of forty commence to be bad after she had until now so strictly followed the path of virtue—oh why had she been so stupid? If she only had the power to turn back the past and to seize the pleasures lost forever! The thought of a lover came to her more and more frequently, but her husband was now very suspicious and jealous and was looking for opportunities to convict her of faithlessness and thus get even. And then again she couldn't be "bad" even if she wanted to. She was fundamentally moral and as long as the husband lived she did not want to deceive him. This thought shot through her head as her husband came home once in a fever, and then there came the next thought: If the husband died she would be free and could do whatever she wanted. But the husband got well and the house became even more unpleasant than before. Now there came other ideas, which crystallized into poisoning fancies—all in the cause of revenge. These fancies were now mostly subconscious, the psychic conflict became unsolvable as a part of the motives was unknown to the patient herself. And

now only she ceased to masturbate. She really never had any sensation in coitus. She was internally anesthetic, so that the masturbation performed by friction of the clitoris was of more value to her than coitus. But suddenly the idea came to her that she had ruined herself by her masturbation and she began to make herself the most violent reproaches. It will be noticed that these were really displaced reproaches, because they arose from other sources: *The masturbation becomes the bearer of all guilt. It takes on itself the guilt-feelings which arise from other sources, but must not and cannot become conscious. The masturbation becomes the representative of all guilt.*

And so it was in this case. This woman reproached herself with her criminal fantasies and wishes for her husband's death. These affects were transferred to the masturbation, and only now can we understand her suicidal tendencies: they were the punishment for her poison ideas. The giving up of masturbation was also caused by the verdict of the inner judge; she found herself guilty and punished herself by withdrawing the highest pleasure that she knew, but she was unable to lead a life without masturbation. She was sleepless, because the principal cause of insomnia is the lack of sexual satisfaction. Her sleeplessness, however, was of that type that she first fell asleep quietly and then suddenly woke with fright from confused dreams. What kind of dreams were they? She communicated some. The dreams were all love scenes with strange men. She woke just before the orgasm, or during the orgasm, and always found her hand on her genitals: that is, she continued to masturbate in her sleep.

Her way was the most frequent form of unconscious masturbation, that is pollutions. All neurotics have an important principle without the knowledge of which many of their actions cannot be explained. That principle is pleasure without guilt. Pollutions are a form of masturbation for which one cannot be held responsible, the reproaches cannot be directed to oneself.

But this patient undertook the responsibility for her dreams also. She did not want to "fall" even in her dreams, and wanted no orgasm. This was the secret punishment which she unconsciously inflicted upon herself. She developed a fear of the night which was really only a fear of the bad thoughts of the night. She did not fall asleep because she had to watch herself in order not to masturbate in her sleep. The explanation of her ideas and the frank confession of the patient had a pretty good success. With the aid of $\frac{1}{2}$ gram of adalin she could sleep for five

hours, but she woke in the night and for fear she might remain sleepless she took another $\frac{1}{2}$ gram of the drug. But such a patient who cannot sleep without hypnotics and has not lost the fear of the night is not cured, and this fear refused to disappear.

But one day she came radiant to the doctor. She had slept the whole night and said she was entirely cured. After several weeks she confessed that she began to sleep only after she began to masturbate again. Her appearance changed markedly, she became again joyful, could laugh, entertain herself — in short she was again perfectly well and felt well.

"Where in this case," asks the author, "are the injurious effects of masturbation? Here we can calmly speak of its usefulness without fearing to be dubbed a 'masturbation advocate.' *And in my opinion the masturbation advocates have surely done less damage than the masturbation prosecutors.*"

The author continues: "I know sufferers from compulsion-neurosis who became perfectly well, gained in weight and could do better work when a certain measure of masturbation was permitted to them; and all psychanalysts can confirm that the hardest cases of the neurosis are those who are allegedly perfectly abstinent and never masturbate. I have stated in the beginning that all people masturbate. These abstinents must also have masturbated, and they have done so, and mostly in an abundant measure. That they are not aware of it, that they do not even suspect it, shows only the greatness of the displacement, the significance of the splitting of their psyche, the abyss which lies between consciousness and unconsciousness. And these cases are therefore so difficult because it costs great effort to discover and to render conscious the infantile and masked masturbation.

All those apparently abstinent practice some form of unconscious or masked masturbation. The most common form, as already mentioned, is pollutions. Such patients fight bitterly and energetically against the night emission. The healthy person takes the pollution as a matter of course, in some cases even as a welcome relief. He is satisfied with this sort of masturbation without consciousness of guilt and is glad of this harmless deceit. The neurotic whose accompanying fancies always lead into forbidden ground (and this is what constitutes the guilt feeling of pollutions) fights against masturbation [pollutions] because it is connected with incest fancies, criminal desires, perversions, or as F. S. Krauss calls them, paraphilias. He tries by the aid of a strict diet, hard bed, drugs, cooling sounds, exhaustion by physi-

cal labor, hypnotics, etc., to become master of the pollutions. Each pollution fills him with care, with anxiety about his health, with despair. His pollutions make their appearance mostly after the youth, frightened by one of the terrible books, has given up masturbation. The pollutions disappear when they again begin to masturbate. It is remarkable that normal sexual intercourse is not always a remedy against pollutions. We see many cases where the pollutions disappear completely when normal intercourse is taken up and is practiced frequently enough. Others, however, go to a woman and still get a pollution afterwards or must masturbate. Why is this? That comes from the fact that these people do not find in a woman their adequate form of sexual satisfaction, or that only some of the components of their erotic instinct take part in the act, while the other components, like all hungry desires, are waiting for satisfaction. So there are unconscious homosexuals, who do not know that they have homosexual desires, who always "must" masturbate after the normal sexual act.

THE CLOSURE OF OBSTINATE PERINEAL FISTULAE
FOLLOWING OPERATION FOR STRICTURE OF
URETHRA. THE PREVENTION OF
THESE FISTULAE

By HOWARD A. LOTHROP, A.M., M.D., Boston *

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Boston City Hospital.

AS a general rule, it is essential to discover and remove the cause in treating lesions of a surgical nature, and unless that is done the effort will fail. This is particularly true of cases of obstinate perineal fistulae secondary to lesions of the prostate gland and urethra. Except in the rare cases where tuberculosis and carcinoma are present, the persisting cause is a mechanical one. Like any fluid, urine will follow the course of least resistance. Therefore, if there exists a urethra with incomplete wall, accompanied by more or less distal obstruction, one cannot expect the urine to follow the natural channel. Hence, many perineal wounds are either very slow to heal or may remain open indefinitely.

In trying to ascertain the causes of these obstinate and troublesome fistulae, let us consider some of the types of lesions which are followed by this complication.

* *Boston Medical and Surgical Journal.*

Group 1. *Cases of Urinary Extravasation.* These are generally the result of stricture. There is a varying degree of local infiltration, the parts become infected, and the less resistant tissues become necrotic. Meanwhile, the patient may become very toxic and his condition critical unless incisions are made or openings in the skin appear spontaneously. If resolution should follow, a fistula would result and persist indefinitely, because the underlying cause (stricture) still persists. If, however, such a case of extravasation were operated upon simply by free incisions and nothing further done to relieve the stricture, owing perhaps to the serious toxic condition, there would be the same chance of a chronic fistula as though the opening were spontaneous.

It frequently happens in this class of cases, owing to the distortion of parts and the sloughing, that no guide can be passed into the bladder and that in the effort to find the urethra it is extensively injured and perhaps destroyed for some distance or a considerable portion of it sidetracked by the catheter, if passed through the penile urethra into the bladder. Finally, the catheter may have been inserted into the bladder only through the perineum and prostatic urethra. These circumstances tend to establish obstinate perineal drainage.

In dealing with these cases of urinary extravasation, the first indication is the establishment of free drainage from the tissues, particularly if the condition is critical, but, ultimately, of course, the stricture must be incised. This should be done at the first operation if the condition of the patient warrants, provided the operation is not too prolonged and the effort not attended with too great difficulty or unnecessary injury to the urethra. The bladder should be drained in these cases, as in all others, by a catheter which includes the whole urethra, and the opening in the perineum should serve to drain only the adjacent tissues.

Group 2. *Fistulae after Prostatectomy by the Perineal Route.* After prostatectomy by the perineal route, chronic and sometimes permanent fistulae are not uncommon. In view of the frequent extensive destruction of the membranous and prostatic urethra and the neglect to keep open the remaining portion of the anterior urethra, it is surprising that the urine finds its way into the penile urethra as well as it does. In some cases careful operators are able to remove the gland without material injury to the urethra but, as a rule, it is considerably torn.

Many resort solely to perineal drainage and occasionally insert considerable packing into the wound and neglect the distal portion of the urethra which, of course, remains collapsed. After these drains are removed, the greater portion of the urine will escape through the wound, but will decrease gradually as the wound tends to close and the distal opening in the urethra remains patent. If granulations tend to obstruct the latter they offer resistance, and a fistula may persist.

If, on the other hand, the operation be performed with care so as to cause a minimum of urethral injury, and a catheter for bladder drainage be placed so as to include the whole urethra, and a light gauze packing be left in the wound and removed as soon as hemorrhage is arrested, then the conditions are most favorable for early and permanent wound closure. The soft parts close around the catheter, where the urethra may be deficient, and the approximated surfaces become glued together by granulation tissue. In many cases the wound may be nearly closed with large, mass, silkworm gut sutures and, by means of seepage for 36 to 48 hours, all exudate and fluids be promptly removed and thereby absorption prevented. The patient may be propped up in bed during this period. If there is no contra-indication, the catheter should remain in place at least one week.

Group 3. Fistulae Following Operations for Stricture. This complication not infrequently follows external urethrotomy, depending upon various circumstances. If we have to deal with a passable stricture, it is possible to obtain relief by intra-urethral methods, such as gradual dilation or internal urethrotomy, irremovable urethra. Internal urethrotomy is the accepted method irrespective of whether the stricture is situated in the penile or membranous urethra, but is generally condemned for deep strictures because of the danger of infecting the perineal tissues, and this complication has occasionally proved serious. As a rule, however, internal treatment of the urethra is not followed by urinary extravasation or sepsis, even when the crude and now discarded method of division of deep strictures was used. The usual method of treating deep passable strictures which do not yield to gradual dilation is by external urethrotomy, and this is the only way if no guide can be passed. The resulting injury to the urethra will depend upon the care of the operator and upon the presence or absence of a guide and upon the subsequent tearing in introducing the catheter for drainage. Most surgeons insert the catheter through the whole urethra, but the wound varia-

tion is considerable as to the extent of incision or laceration of the urethra and perineal tissues and the amount of subsequent packing or closure of these tissues. Some remove the catheter very early and some keep the wound open with repeated, extensive packing. If a guide has been passed, the only object of a perineal incision is to guard against infection; hence all that is required is a small incision in the perineum down to the urethra, performed after the stricture has been cut with the Maisonneuve instrument and sounds passed to the desired size; if an external urethrotomy is done without a guide the perineal wound can be all but closed, and thus allow ample drainage. Later the wound could be opened easily if indicated. Hence, freshly incised tissues are approximated and heal quickly when held in apposition with mass sutures of silkworm gut, which should not be removed for at least a week. The catheter should remain this length of time also and repeatedly when removed there is little or no escape of urine through the nearly healed prinal wound in uncomplicated cases. The importance of leaving a minimum opening for drainage in clean cases and the proper retention of the catheter are essential for rapid and permanent healing. This is further demonstrated by the fact that success in plastic operations for cure of hypospadias depends upon wound closure and catheter retention until healed. Their tendency to fistula formation is well known by those who operate upon these obstinate cases. Prevention of recurrence of stricture will depend upon the faithfulness of the patient in attending to subsequent passing of sounds for an indefinite period.

So much for factors which tend to produce perineal fistulae and for measures for prevention of the same.

Method of Relieving These Cases. As already mentioned, the fistula persists for mechanical reasons, the urine following the path of least resistance. If there is resistance to the stream anywhere in the urethra distal to the opening which leads to the perineum, the fistula will tend to persist and the granulations fail to close it. Hence, all distal strictures must be relieved by full sound dilatation. Sometimes the introduction of a catheter for permanent drainage of bladder for a couple of weeks may avail. If these simple measures fail, some sort of perineal operation must be resorted to. These fistulae have often been opened down to the urethra and curetted, caustics applied, and other means resorted to, only to be followed by failure.

Technic. Each case may present some special feature, but

the following general technic has never failed of speedy relief in the hands of the writer.

The operation should be deferred until all acute signs have subsided and only the fistulous tract remains. A guide should be passed through the whole urethra into the bladder. If there is no tight stricture, a moderate sized, steel sound (French 24) should be selected so as to distend the urethra at the fistulous opening; otherwise, a small guide should be used. Any stricture in the penile urethra should next be divided with the Otis or Maisonneuve instrument. Any narrowing at or near the fistulous opening, which is usually in the membranous urethra, should next be divided internally and preferably with the Maisonneuve instrument. Then a steel sound, French 24, is passed and the patient put in the lithotomy position.

If no guide can be passed into the bladder, one should be introduced to the point of stricture, and the patient put in the above position. Next, the direction and length of the fistulous tract should be determined with a small probe. An oval incision is then made in the perineum around the opening of the fistula, leaving a margin of skin, one-third of an inch wide, around it. If needed, a little more room may be gained by making an incision in the antero-posterior direction at either end of the oval one, but this is not often the case. The next step is the careful dissection of the tract so as to excise it without opening it until the urethra is reached. Its wall should be kept reasonably thin, but should contain ample tissue so as not to break when the necessary traction is used. The dissecting will be chiefly through scar tissue. Frequent use of the probe will indicate the direction of the fistula or some sort of a guide may be left in the tract during the dissection. Stay sutures or some instrument should be used during the dissection for traction, and the dissection is nearly bloodless. The tract will vary from one to two inches in length. When the urethra has been reached a ligature of No. 1 chromicized catgut should be tied around the base of the tract, which is practically a tube, and the distal portion excised. Where it has been possible to insert a soft rubber catheter for permanent drainage prior to dissecting out the tract, this proves to be the best technic, because the catheter is as good a guide as the steel sound and, being already in position, there is no subsequent danger of injury after the parts have been dissected. Finally, the cut edges of the stump (tract) may be sutured with plain catgut. Then the walls of the inci-

sion are held in approximation with three or four interrupted, buried sutures of plain catgut. The edges of the skin, including some of the deeper tissues, are sutured with silk-worm gut or silver wire *en masse* so as to close the perineal wound. Owing to the fact that dissection has been through scar tissue, there is but little chance for infection or infiltration. In thin subjects, where the fistulous tract is short, perineal drainage is not indicated but, as a precaution in certain cases, a very narrow strip of rubber dam may be inserted for twenty-four hours. The silkworm gut sutures should not be removed for about ten days. The after-treatment does not differ from that of any patient wearing a catheter for bladder drainage. The perineal wound must be inspected daily and kept clean by lotions, wet dressings, or a little boric ointment, as each case may require. The catheter must be kept clean and in place for about ten days. At the end of this time the wound should be about healed, but, if a few drops of urine should escape, this condition will persist only a few days. As after any stricture operation, sounds should be continued in the usual way.

If no guide can be passed prior to beginning the perineal operation, the technic is a little more difficult in order not to wound the urethra unnecessarily, but the general procedure is the same. A blunt guide should be passed to the stricture and the tract dissected down to the urethra and, instead of its being ligated at this time, it should be split open its full length, when a probe and then a slightly curved, small director may be passed into the urethra in either direction. In the groove of the director a small Otis urethrotomy knife may be passed, dividing the stricture. After the passage of sounds the rubber catheter is to be inserted, the tract ligated and sutured and the wound closed as above described.

The appended cases are examples of the two conditions which may be met:

CASE 1. This man, 38 years old, and in good general health had been operated upon successfully eight years before for stricture. In December, 1910, he entered the Boston City Hospital. Examination showed the presence of an impassable, deep stricture and a perineal fistula of about seven weeks' duration, through which all of his urine passed. He was operated upon by one of my colleagues who divided the stricture after enlarging the perineal wound and seeking the urethra with a guide. In so doing the urethra was opened for about two inches. The sinus was

curetted and the wound packed after a catheter had been inserted through the whole urethra for bladder drainage. The catheter was removed in about seven days after which sounds were passed. It was one month later before any urine was passed through the penis. At the end of three months there remained a perineal fistula through which most of the urine escaped, although a French 28 sound could be passed.

The above was the condition when I saw this patient and the following operation was performed for the closure of the fistula. A small probe in the fistula came in contact with a steel sound previously passed, and the tract was about one inch long. With a Maisonneuve instrument several narrow places in the deep penile and membranous urethra were divided and then dilated to the size of a French 30 sound, and a soft rubber catheter, French 28, introduced with a stilette and left for permanent drainage. Patient was then put in the lithotomy position. Steps were carried out as given above in detail and briefly were as follows: Oval incision around the opening of the fistula leaving a narrow margin of skin a little enlargement of the wound antero-posteriorly, at either end of the oval incision, then a careful excision of the fistulous tract down to the urethra. The tract was then ligated with No. 1, chromicized catgut and excised, a strand of gut being left long to act as a drain. The wound was nearly closed with buried, plain catgut sutures and large mass sutures of silkworm gut for the skin and deeper tissues. Nothing but scar tissue was exposed by this dissection, which made a conical cavity narrowing at the urethra. The convalescence was uninterrupted. On the eighth day there was a slight leak of urine from the wound. Catheter removed on the eleventh day and the stitches on the fourteenth day, at which time a few drops of urine escaped through a small perineal opening. A French 28 sound was passed on the seventeenth day and every five days thereafter. On the twenty-third day following operation the perineal opening was closed and remained permanently so and patient was passing a normal stream. Pathological examination of the excised tract showed only scar tissue.

CASE II. A man, 48 years old, operated upon six years ago for stricture. The perineal wound healed but one year later a local abscess formed and a discharging urinary fistula has since persisted. Examination shows a redundant scar in the center of which is a small opening leading to the urethra. He has also an impassable stricture and most of the urine passes

through the fistula. He was operated upon April 12, 1912, at the Boston City Hospital. The technic differs from that used in the above case because no urethral guide could be passed. Briefly, it was as follows: A guide was passed down to a deep stricture. The fistulous tract was dissected out its full length and it was then split open anteriorly down to the urethra. A probe was passed into the bladder, then a small grooved director, on which an Otis urethrotomy knife was passed, thus cutting a moderate stricture proximal to the opening in the urethra. In a similar manner, a probe and then a director were passed into the penile urethra through the small fistulous opening, using care not to enlarge it, and the deep, penile stricture incised. A Maisonneuve instrument was easily passed and the knife used to ensure a full division of all strictures. The urethra was dilated with a French 30 sound and then a No. 28, soft rubber catheter introduced with a stilette. During all this manipulation great care was exercised not to injure the urethra unduly nor enlarge its fistulous opening. Finally, the base of the tract was ligated and excised, as in Case I, and the wound closed except for a strip of rubber tissue, one-eighth of an inch wide, which was removed on the second day. The catheter was removed on the fourteenth day. This wound healed by first intention, there being no escape of urine or exudate. It remained permanently closed and he passed a normal stream.

AN UNUSUAL CONDITION CAUSING IMPOTENCE IN THE MALE

By FERDINAND C. WALSH, M.D., San Antonio, Tex.

AFTER a careful search of the literature at my command, bearing on the subject of sexual impotence, including Vecchi's exhaustive and painstaking work entitled "Sexual Impotence," I am struck with the apparent uniqueness exhibited by two cases recently met with.*

Impotence, in its generally accepted term, is the lack of ability to perform the sexual act. The consummation of the sexual act implies the power of intromission and ejaculation.

Ordinarily patients presenting themselves on account of impotence may be grouped into three main classes:

1st. Those whose impotence may be traced to psychic origin.
2nd. Those in whom disease has wrought changes in the nerve centers governing sexual impulse.

3rd. Those in whom some congenital or acquired defect or malformation exists. Again we note that these patients come to us either complaining that erection is absent altogether or so diminished as to make intromission impossible, or that ejaculation takes place before introduction. That the reverse of this may be true is exemplified in the two cases reported below. These patients were both fertile, in that they possessed active spermatozoa, potent in so far as intromission was easy of accomplishment, yet impotent in that in each instance ejaculation was impossible. In the expressate obtained by stripping the seminal vesicles actively motile spermatozoa were obtained.

Case No. One. C. G., age 34 years. Referred by Dr. C. S. Venable, June, 1911. Patient states that since earliest recollection his erections have been normal in character. His attempts at intercourse, however, have been altogether unsatisfactory. He says that he experiences no difficulty whatever in his erectile power but that the act of copulation is productive of no result whatever so far as ejaculation is concerned. Up to the past year has not had more than half-dozen nocturnal emissions. During the past ten or twelve months has had nocturnal emis-

*I see a large number of cases of retarded or absent ejaculation in my practice, and in my recent book: "A Practical Treatise on the Causes, Symptoms and Treatment of Sexual Impotence and other Sexual Disorders in Men and Women," I speak of this condition, and give several case reports.

—W. J. R.

sions as often as four or five times in one week. Patient's family history negative. Previous history, save as above given, unimportant. Examination: External genitals normal. Prostate, as felt through rectum, together with seminal vesicles, appear normal. Massage of prostate and stripping of vesicles produces a normal appearing fluid, which, on examination, shows many actively motile spermatozoa. The introduction of a No. 23 French urethroscope was easily made and the tube passed backward until an obstruction was met with well back in the posterior urethra. The urethroscope was withdrawn and various sized metal sounds were introduced, none however succeeding in entering the bladder. Later the filiform like introducer to a Le Fort dilator passed through, and this was followed by the shaft of the instrument. Considerable bleeding followed this dilatation. Three days afterward, under cocaine anesthesia, graduated sounds were used, the calibre of the urethra then being 26 French. After waiting two days, the urethroscope was readily introduced and the urethra inspected throughout. A very interesting condition was revealed. In the prostatic urethra the verumontanum, instead of appearing as an elevation in the center of the urethral floor, was, by reason of the passage of the metal instruments, divided into two unequal parts. These two parts appearing as tufts of mucous membrane clinging to the walls of the urethra, the urethral floor being bisected and partially denuded of mucosa. The after treatment consisted simply in the passage of sounds and dilatation by the Kollmann dilator, which treatment was continued for about two months. At the end of the third week intercourse was attempted and proved successful. Six months later patient reported, to use his own words, "I have nothing to complain of."

Case No. Two. Lieut. J. G. J., age 30. This patient was stationed here during the army maneuvers and was referred to me by Dr. Malone Duggan. Family history unimportant. He stated that erections were produced upon slightest provocation. He had never voluntarily ejaculated. Had attempted intercourse on three occasions. Intercourse could be prolonged at will, but was attended by practically no sexual sensation. He had had not over ten or twelve nocturnal emissions. Examination of the external genitals reveals a normal condition. Prostatic massage and stripping of vesicles produces an expressate containing healthy spermatozoa. Anterior urethra normal, but posterior urethra refuses to admit a No. 10 French sound. Two days later

a No. 8 French was passed with difficulty. During the next ten days the urethra was dilated up to No. 28 French. The urethroscope was introduced and on the sides and floor of the prostatic urethra was seen the divulsed ends of what looked like a band of tissue connecting the two ejaculatory ducts. This patient returned in four days for further dilatation. At this treatment he was instructed to call again in four days. He anticipated the instruction and presented himself two days later announcing that further treatment was unnecessary, as he had already "accomplished the desired result." That the result was not transient was proven by the fact of his reappearance, about two months later, with two chancroids.

The physiological act of ejaculation is accomplished by the discharge of the seminal and prostatic fluid into the posterior urethra, followed by a wave like contraction of the compressor urethrae muscle. It is absolutely necessary that the posterior urethra, or at least that portion adjacent into which the ejaculatory ducts enter, should at the moment when these ducts open, be capable of free distension to admit of the reception of the contents of the vesicles. In the two foregoing cases, on account of the constricting bands, this was not possible. The fluid could not enter the urethra, therefore ejaculation could not be accomplished. The foregoing was true so far as the prevention of ejaculation during intercourse or masturbation was concerned, for during these two acts the penis was in a state of erection with a consequent tension on the urethral bands, thus approximating the walls at the outlet of the ejaculatory ducts. On the other hand, the explanation of the appearance of the seminal fluid at night and by the massaging finger is made on the ground that, in both these instances erection is not complete or wholly absent, hence there is no tension put on the urethra causing the mouths of the ejaculatory ducts to close, consequently the seminal fluid easily escapes.

SEXUAL IMPOTENCY IN THE MALE

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AUTHORIZED TRANSLATION. EDITED WITH NOTES AND ADDITIONS BY
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[Continued from the April Issue]

CHAPTER XIII — PHYSIOLOGIC CONSIDERATIONS

THE normal sexual act in the healthy man consists of a series of reflex acts and psychic processes, the course of which follows certain definite laws. Without going into the details which was done in the chapter on impotence, we will mention briefly the essential points concerning the two great reflex processes, erection and ejaculation.

Erection of the male organ consists of a simultaneous increase in volume and consistency with a rise of temperature and of blood-pressure. The interstitial cells of the corpora cavernosa are filled to bulging with blood in this manner: by means of the vasodilator "nervi erigentes" the inflow of blood is much increased, while the outflow of blood is also prevented by anatomical and functional causes.

The cerebral cortex forms the highest center for erection. Sexual abstinence of long duration, which has led to stagnation of the secretions of the sexual glands, exerts a mechanical or chemical stimulus, which through the mediation of the brain causes sexual desire and erections to appear.

Conceptions of an erotic nature can also lead to erection without the intermediation of mechanical stimuli in the periphery. And experimental physiology further taught us that there are centers for erection and for ejaculation, one for each, in the lumbar section of the spinal cord. Reflex centers are also to be found in the sympathetic ganglia, the mesenteric and pelvic plexus of the sympathetic.

The stimulus travels from the cord to the periphery through the "nervi erigentes," which contain sympathetic as well as spinal fibers, and so produces stiffening of the organ.

And thus the spinal or sympathetic center can be directly

excited from the periphery without the intermediation of the cerebral center and so produce an erection.

Mechanical irritation of sufficient duration and intensity stimulates from the periphery the second center, the ejaculatory, which is coördinated with the first, and hence are innervated through the centrifugal ejaculatory nerves, the muscles of the seminal vesicles, the prostate, the vasa deferentia and finally the bulbocavernosus and the ischiocavernosus muscles, the coöperative activity of which results in the ejaculation of semen. The characteristic voluptuous feeling (orgasm) is discharged at the same time.

The normal sexual act proceeds always in the quite typical sequence of the individual innervations. So soon as the excitation of the two reflex centers and the innervations proceeding from the same have taken place in normal fashion the states of excitement in the centers as well as the congestion in the periphery at once cease.

A stage of rest now supervenes, which gives the centers opportunity to recover, and produces a temporary physiologic impotence. All the functional disorders of the male sexual functions may essentially be reduced to the fact that the mutual relations of the centers for erection and for ejaculation are affected, or the sequence of innervations in the separate reflex-arcs has been disturbed.

It is further important to keep in mind that there are separate inhibitory arrangements for the two reflex-arcs, as has been proved by the experiences of clinical pathology and experimental investigations.

Many pathological phenomena of the male sexual functions first become clear to us when we fully appreciate the fact that the erection center is the more easily excited and also the more easily exhaustible of the two, while the ejaculatory center is less excitable and not so easily exhausted. E. Finger has particularly emphasized this fact.

He distinguishes as a rule two stages in the development of the genital functional disorders: at first a phase of increased excitability, and later a phase of exhaustion, of absolute weakness.

The necessary requirements for the normal sequence of the above-mentioned two reflexes, which compose a normal sexual act, are a healthy state of the nervous paths, over which they travel, anatomical adaptation of the genital and copulatory organs, and the undisturbed intention for coitus; that is, the presence of the libido and the impetus cœundi. The psychic end-result, the coming of the orgasm, is also an integral part of the sexual act.

When one or more of these conditions fail, we have the basis for a derangement of the normal sexual functions.

Pollution, which from time to time produces in healthy continent men an emptying of the seminal receptacles, may be regarded as an image, so to speak, of normal sex-intercourse. Instead of the presence of the woman and the intention to carry out coitus come erotic dreams, the intensity of which must, however, be so great that sufficiently strong stimuli are carried to the erection as well as to the ejaculatory center to cause the whole act to be passed through up to seminal emission.

CHAPTER XIV — POLLUTIONS

AS soon as a male individual reaches the stage of sexual maturity nature demands with irresistible power the periodic emptying of the semen; and this happens by means of pollutions, if voluntary ejaculations, coitus or by means of masturbation do not take place.

We should define a normal pollution as a seminal emission occurring in sleep, hence unintentional and unconscious, with erected penis and accompanied by erotic dreams.

This event repeats itself in healthy men at certain intervals, which however show no definite regularity. The intervals vary in different individuals according to their age, temperament, manner of life, and the temporary state of their sexual sphere.

The old physician explained these normal pollutions as a supposed "seminal plethora." After sexual abstinence of long duration a certain unpleasant feeling is produced in the whole body by the filling of the receptacula seminis and the stagnation of their contents, which manifests itself externally in dis-

quiet, ill humor, and tiredness. There is a peculiar feeling of tension in the genitals, pains appear in the testicles, then pressure in the head and digestive disorders.

Whether this "seminal plethora" means a chemical action proceeding from the genital glands upon the entire organism, or whether the mechanical pressure of the overfull seminal vesicles produces the characteristic unpleasant sensations, it is impossible to state with certainty.

The internal secretions of the testes and prostate give probably the first impulse to the sexual functions, for the first true sexual desire occurs at puberty, when, under the influence of these internal secretions, not only the genital organs are undergoing great growth, but a revolution takes place in the whole psychic and somatic development of the organism.

The sensations designated as seminal plethora assert themselves most clearly in puberty, when they often occur with a very striking periodicity.

A pollution puts an end quickly to such a condition as a rule. Accompanied by an erotic dream the erection center is excited, and the ejaculatory reflex is discharged.

After such a NORMAL seminal emission the patient feels better, has desire for work and a clear brain, and all the local troubles in the genital organs disappear at one stroke. Seminal emission is facilitated by the customary erection of the member with a full bladder, which is probably due to the mechanical pressure of the full bladder upon the *nervi erigentes* in the early morning, and occurs without voluptuous feelings. Physiologic pollutions take place commonly at this time, in the second half of the night as a copious seminal emission. This fact indicates that at least in a part of the cases the emission is not an immediate consequence of erotic dreams, but that originally the mechanical erection from a full bladder, when it is of long enough duration, causes lustful dreams, which, if sufficiently intense, can produce an ejaculation.

The much debated question, which is to be considered primarily in pollution: THE EROTIC DREAM OR THE NON-VOLUPTUOUS ERECTION IN SLEEP, must, it appears to me, be answered differently in different cases. The appearance of erotic

dreams might doubtless be the primary cause in men who were accustomed to regular sex-intercourse and for any reason are temporarily abstinent. But it will not do, as Tissot and others assume, to declare that the imagination, heated by sexual thoughts and continuing to work on the same subject during sleep is always responsible for the origin of pollutions. This is especially shown by the nocturnal seminal emissions, which occur with a certain periodicity in healthy, continent young men; these are due to the fact that the tension caused by the gradual filling of the seminal vesicles produces such excitement of the sexual centers that this state becomes naturally relieved by a seminal discharge.

Of course the emptying of the semen occurs in such healthy men, accompanied by the specific voluptuous dreams. Just the frequent pollutions of masturbators, which Tissot mentions as evidence for his view that the "heated imagination" is responsible for pollutions, rather favor the supposition that in these persons the permanent irritation of the sexual sphere is the primary cause of the nocturnal emissions, especially since we know that these patients often suffer from habitual erections at night (chronic nocturnal priapism), and the pathologically diminished resistance of the ejaculatory center can result rather easily and quickly in seminal emission.

From the natural pollutions, in which the man regularly dreams of performing coitus, we must separate another kind of nocturnal emissions, which occur in habitual masturbators. The morbid habit of producing sexual excitement even to ejaculation by mechanical friction leads in many persons to acts of so-called unconscious onanism. The erections occurring during sleep occasion these masturbators to continue their bad habit even in the unconscious state, until, aroused by the sensation of seminal emission, they awake with their hands still manipulating the genitals (sleep-masturbation).

The criteria, according to which a pollution is to be regarded as normal—that is, the equivalent of a normal coitus—are: first, its occurrence in the sleeping, unconscious state; secondly, its isolated, not repeated occurrence—corresponding to the individual's sexual need—third, its taking place with a

full erection; fourth, its accompaniment by erotic dreams, and fifth, the effect on the organism must be that of producing an alleviating, pleasant feeling, like the feeling of satisfaction after normal coitus.

Pollutions are pathologic when they occur in the waking state (diurnal pollution or spermatorrhea), when they are frequent, when they occur without erection, without erotic dreams or on the contrary with disgusting or sexually indifferent dreams, and finally—which is the most important sign of pathologic pollution—when they are followed by great depression, exhaustion, laziness, and local complaints in the genitals.

We distinguish accordingly the following groups of pathologic losses of semen:

1. Frequent nocturnal pollutions.
2. Diurnal and relaxed pollutions.
3. Spermatorrhea.

We will treat all these groups together, since they represent similar symptoms, however different in degree, of the same fundamental affection: irritable weakness of the genital sphere.

The question, when we have to consider frequent nocturnal pollutions as pathologic, is not so easy to answer. What must be regarded in one man as lying within normal limits must be considered in another as the sure sign of a severe pathologic condition.

It certainly will not do, as was formerly attempted by Tissot and Lallemand, to set a fixed number, beyond which pollutions are to be regarded as pathologic, and below which they are normal. As has been already said, the number of pollutions depends upon temperament, on external habits, age, and many other external circumstances and the temporary state of mind.

We can certainly declare an emission pathologic when its reaction on the organism is unfavorable, when the patient after it feels remarkably depressed and tired, and when he complains of unpleasant sensations in his genitals.

In the clinical picture of sexual neurasthenia, which we shall consider later in detail, the frequent repetition of nocturnal emissions forms the chief complaint, even in the early stages of the affection.

Patients who have in natural intercourse already lost a part of their sexual power (*ejaculatio præcox* and *retardata*) and patients who cannot perform the sexual act at all any more suffer almost always from pollutions. In the nights following a sexual fiasco the semen is usually emptied two or even three times. We observe such periods of frequent pollutions, not only among sexual neurasthenics, whose sexual life has suffered from habitual sexual abuse, but also—as a sort of *acute sexual neurasthenia*—after sexual excesses. Overexertion in sexual matters, namely very frequent and quickly repeated cohabitations, lead to a state of irritation of the genital spinal centers, which, continuing also during sleep, may lead to frequent pollutions. We see then here besides the signs of a general acute nervous exhaustion the symptoms of acute sexual neurosis: FREQUENT POLLUTIONS, IMPOTENCE, DIGESTIVE DISORDERS, PSYCHIC DEPRESSION, etc.

Experience shows that in all forms of sexual neurasthenia pollutions; that is, unconscious sexual acts, outlast the capacity for coitus a long time.

Frequent nocturnal pollutions lead in many cases to the next severer degree of irritable weakness of the sexual sphere, DIURNAL POLLUTIONS.

We must at once admit that also by day in sufficiently deep sleep a normal pollution may occur with erected penis; this is, however, not meant to be included in the term “diurnal pollution.” The other is indeed a sleep pollution, as we should designate the normal pollution in a stricter sense.

The greater degree of irritability of the sexual centers shows itself in the appearance of pollutions in a completely waking state. (Waking pollution.) Often a trifling erotic excitement, such as the contact with persons of the other sex in public places, or in still worse cases a simple sensual conception, the sight of a lascivious picture, or reading an obscene story suffices in cases of advanced irritable weakness to produce a rapid erection, followed at once by a seminal emission.

If the irritation of the reflex centers has gone still further, ejaculation also occurs without erection (relaxed diurnal and nocturnal pollutions). The nocturnal pollution as well as that

occurring by day consists then in a seminal emission suddenly produced by means of any erotic conception and taking place mostly without any voluptuous feelings.

Such sexual experiences are closely followed by a feeling of the greatest discomfort: self-reproaches, general weakness, intracranial pressure, exhaustion amounting even to attacks of swooning, trembling, and inability to work, to think, or to move.

In this advanced stage of sexual weakness there occurs at each attempt at coitus either a premature ejaculation "ante vaginam" with incomplete erection; or any attempt at intercourse ends in seminal emission without erection at all. And the above-mentioned phenomena of intolerable discomfort replace the satisfaction and well-being.

The nature of the dream accompanying pollution is quite characteristic for this stage of the pathologic seminal losses.

Whereas a normal pollution represents the final result of a more or less completely dreamed sexual coitus, the dreams accompanying the emission in a pathologic pollution are changed in proportion as the irritable weakness of the genital centers has developed. The dream corresponds at first to an unsuccessful attempt at coitus failing on account of premature ejaculation; later a simple idea, which is halfway erotic, suffices to produce ejaculation with relaxed penis and without excitation of the ejaculatory center (atonic pollution). With still further advanced sexual irritability it is often no longer an erotic dream at all which accompanies the nocturnal emission, but any sexually indifferent dream, which is often of a disgusting nature.

Lallemand mentions a patient whose dreams represented the copulation of two flies. One of my patients, who suffered a pollution regularly every night, dreamed at the moment of seminal emission of a closing box slamming, of a barking dog, of a gas explosion, etc. In another of my cases the pollution is accompanied by the dreamed perception of a disgusting fecal odor or the odor of a corpse.

[In one of my patients the frequently occurring pollutions were always preceded by a dream of a mathematical nature.

He would dream that he had to multiply two large numbers, and the painful and unsuccessful efforts to complete the problem would result in a pollution. Another patient would try to repeat a certain poem by heart, and the pollution would follow the failure to remember the lines. Another patient would dream that he had to catch a train or a steamer; the slow movement of the trolley-car which was to bring him to the train or steamer would exasperate him and result in a pollution. These pollutions kept up for over a year, repeated every two or three nights, and had brought him to the state of a "nervous wreck" when he came for treatment. It can be observed that the non-sexual dreams resulting in a pollution generally represent some unsuccessful, some unpleasant effort. It is never a successful, pleasant experience (i.e., of a non-sexual character) that results in a pollution.—W. J. R.]

(To be Continued)

REVIEW OF CURRENT UROLOGIC LITERATURE

FOLIA UROLOGICA

Vol. VII, No. 5, January 1913.

1. Examination of Floating Kidney with X-rays. By Béla Alexander. P. 271.
2. Late Perforation of the Bladder by an intra-abdominal Silk Ligature. By A. Grandjean. P. 281
3. Urinary Gravel Containing Ova in Bilharzia Disease. By Edwin Pfister. P. 289.
4. On Mitochondrial Formations and their Secretion Granules in Canine Prostates and in the Hypertrophied Prostates of Man. By M. Dominici. P. 295.

1. Examination of Floating Kidney with X-Rays.

The author claims that the examination of a single kidney is not sufficient even in such a clear-cut case as that of establishing the presence of one or more stones but that only the examination of both kidneys can give complete information as to the relationship of both organs to each other. In such a case we can compare both kidneys as to dimensions, changes in shape and size, and draw important conclusions therefrom.

In the case of movable kidney the X-ray examination can serve the purpose of differential diagnosis. Even here both kidneys should be examined because by examining and comparing both organs other conclusions can be drawn concerning the diseased kidney than those first suspected. After a few examinations an experienced person can readily detect mobility and change in position of floating kidneys.

2. Late Perforation of Bladder by an Intra-abdominal Silk Ligature.

The patient was a woman who had had some sort of abdominal operation two and a half years ago. She now consulted Dr. Grandjean for a severe cystitis. This cleared up under appropriate treatment but recurred whenever treatment was suspended. Cystoscopic examination revealed the presence of a silk thread, its free end hanging within the bladder, its knotted end being engaged in the peritoneum. The suture was removed entire by slight traction. A small infected sinus persisted which cleared up readily under AgNO_3 instillations.

The author points out that in this case the silk did not perforate the bladder at the time of operation but eroded the walls, slowly causing a secondary vesico-abdominal fistula the first symptom of which was vesical intolerance which manifested itself two and a half years after operation when the patient was in good general health. These symptoms were relieved by rest and aggravated by exertion especially after standing. They disappeared completely after removal of the foreign body.

In order to avoid similar accidents, the results of which may be

very serious, the surgeon would act prudently in avoiding the use of silk for all deep sutures or ligatures especially in the abdominal cavity and preferring the absorbable catgut. Chromicized gut is resistant enough for all purposes and yet will not cause secondary perforations. Even if the bladder should be perforated at the time of operation, irritative phenomena would appear very early and in a few days the catgut would be expelled in the course of a micturition. At the very worst, a small incrustation might form about a retained piece of gut which could be readily removed with a flat-jawed lithotrite.

3. Urinary Gravel Containing Ova in Bilharzia Disease.

People living in warm countries are subject to urinary gravel, due to endemic bilharziasis. This gravel is not of diathetic origin but is due directly to the presence of the foreign bodies, and whereas ordinary urinary stones are situated especially in the kidney or pelvis, these concretions are found more frequently in the lower portion of the ureter and bladder.

The eggs of the bilharzia may, on account of their chitin-content, give rise to colloidal bodies in the sense that Schade has described these as giving rise to stone. The treatment of this condition is purely anti-parasitic.

4. On Mitochondrial Formations and Their Secretion Granules in Canine and in Hypertrophied Human Prostates.

Dominici has used modern methods in studying the secretions of normal and hypertrophied human and canine prostates and has observed mitochondrial forms and secretion granules.

The author assumes the following types of secretion for the normal prostate:

1. Granular secretion with chromophobe and chromophile granules.
2. Fluid secretion.
3. Lipoid secretion.
4. Autolysis of desquamized cells.

The author considers the so-called "plasmosomes" of De Bonis as nothing but droplets and lipoid granules. He draws the following conclusions for the human prostate:

1. Mitochondrial formations are quite clear and numerous.
2. There is no real granular secretion.
3. The fluid secretion takes place in the form of small drops which usually fill the protoplasm.
4. Mitochondrial formations are continually present without regard to the function of the cell, but it seems that there are quantitative changes of importance.

The author concludes that mitochondrial formations do not add directly to the secretion of the prostate but have only an indirect effect as do the secretion granules, properly so-called.

REVUE CLINIQUE D'UROLOGIE

January, 1913.

1. Treatment of Prostatic Abscess. By B. Motz. P. 7.
 2. Modern Methods for Determining Renal Insufficiency. By R. Boulud. P. 21.
 3. On Bacteriuria. By Drs. Palazzoli and Vacqueret. P. 33.
 4. Treatment of Chronic Anterior Urethritis by the Aspiration Method. By W. Bronner. P. 54.
 5. Complications of Gonorrhea; Gonococcic Otitis Media. By I. Pstrokonski. P. 74.
 6. Vaporized Iodin in Urology. By Henry Reynès. P. 85.
1. Treatment of Prostatic Abscess.

Motz has studied the subject of prostatic abscess with a view to determining when surgical intervention is necessary and when it is not. He groups the modes of infection of the prostate into three classes: (1) by contiguity from the ano-rectal region; (2) by the circulation or lymph stream, either during the course of other diseases as a metastatic focus or as a result of traumatism by false passage of catheters, sounds, etc., (3) by infection up the excretory ducts of the prostate, the most common method, following gonorrhea or dirty instrumentation.

From the point of view of localization of the pus the least serious suppurations are those which are limited to the periurethral region of the prostate and those which involve the glandular acini. The more dangerous are those located in the superior and posterior parts of the gland from the danger of causing peritonitis on the one hand and rectal fistulae on the other, and also those involving the stroma of the organ because of the relative insufficiency of drainage by natural channels (excretory ducts). Hypertrophied prostates offer special difficulties inasmuch as infections which would be otherwise simple are rendered dangerous by the existence of the large masses of adenomatous tissue located periurethrally, thus shutting off the direct escape of pus into the canal. In such cases therefore there is enhanced danger of the suppuration extending to the rectum and causing periprostatitis or even of there being absorption of toxic bodies and a rapidly fatal septicemia resulting.

The chief dangers associated with prostatic abscesses are the following: (1) *Chronic prostatitis*. According to the author's experience this complication is much more likely to follow abscesses which have been opened surgically rather than those, gonococcic in origin, which have discharged spontaneously into the urethra and which have been followed up by massage. (2) *Fistulae*—these occur entirely in artificially opened cases. (3) *Mortality*—the danger of death exists in all forms of prostatic abscess and should be considered whenever surgical intervention is likely.

Prophylactically it is very important to enforce and popularize the abortive treatment of gonorrhea. Patients who arrive too late for abor-

tive measures should be subjected to thorough disinfection of the posterior urethra by means of copious lavages. The utmost care should be taken with all instrumentation of the urethra both as regards asepsis and false passages.

The abscess having once formed surgical intervention should take place as early as possible in suppurations of rectal origin, in those occurring in hypertrophied prostates and in those following trauma (false passages, lithotripsy, etc.). Similarly there should not be too much delay in abscesses of metastatic origin especially when the focus is at the top of the prostate. On the other hand it is justifiable to await spontaneous evacuation into the urethra in canalicular, periurethral abscesses. When however the suppuration extends beyond the limits of the gland and points toward the bladder or the rectum, incision should not be delayed too long because the abscess may burst into either of these viscera and open into the urethra as well with the result that a fistula is brought about.

There are three routes for intervention, the urethral, the rectal, and the perineal. If the first is to be practiced at all it will probably be done through some such instrument as the Goldschmidt urethroscope, but the method has not been worked out satisfactorily as yet. The *rectal incision* is again coming into vogue; it is the easier of the two common methods, does not require general anesthesia, and offers a speedy cure. It is the method of choice in abscesses pointing toward the rectum. The advantages of the *perineal route* are: the possibility of complete evacuation of all purulent collections, a thorough examination of the cavity, easy drainage, and facility for tamponade in case of hemorrhage. The chief inconvenience is the length of time necessary for healing.

Postoperative treatment consists principally in daily massage of the gland. Catarrhal prostatitis should be treated with especial care.

2. Modern Methods for Determining Renal Insufficiency.

According to Boulud, when it is not possible to secure a complete urinalysis with determination of the "azoturic coefficient" (the percentage ratio of urea-nitrogen to total nitrogen, normally 82%), the determination of urea and chlorides in a 24 hour specimen should be the first investigation. Next, either cryoscopy should be undertaken, or the constant of Ambard determined or some material should be injected into the circulation and its rate of excretion studied.

From cryoscopic studies we learn: (1) In cardiopathies the chlorides are normal or slightly diminished in amount and the three fundamental values (see below) diminish simultaneously. These three values are, first the "total molecular diuresis" representing the number of molecules of all kinds (including sodium chloride) excreted daily per kilogram of the living subject, second, the "elaborated molecular diuresis," representing the molecules actually excreted as a re-

sult of katabolism and therefore excluding sodium chloride, and third, the "rate of exchange," or ratio between these two values obtained by dividing the first by the second, and representing in a general way the actual molecular exchange in the kidney parenchyma between the blood plasma on the one hand and the urine as excreted on the other. (2) In nephritis with azotemia (nitrogen retention) the chlorides are normal, the total molecular diuresis low, so that the diuresis of elaborated molecules and the rate of exchange is elevated. (3) In nephritis with chloremia the chlorides are low, the total molecular diuresis is diminished, the diuresis of elaborated molecules is increased, and the rate of exchange is diminished. (4) Finally where there is retention of both chlorides and nitrogen the total molecular diuresis is always low, but the diuresis of elaborated molecules, and consequently the rate of exchange, will vary in an irregular and rather complicated manner.

The constant of Ambard is based on the following law: "Since the concentration of urea in the blood varies, and that of the urea in the urine also varies, the urea output varies in direct proportion to the square of the concentration of urea in the blood, and in inverse proportion to the square root of the concentration of urea in the urine." This constant, based on the figures for a 70 kg. man, who excretes 25 gr. of urea daily per 1000 c.c. urine, is obtained from the following formula:

$$\frac{\text{Ur}}{\sqrt{D \times \frac{70}{P} \times \sqrt{\frac{C}{25}}}} = K = 0.06 \text{ to } 0.09 \text{ in health,}$$

in which Ur = the amount of urea in 1000 Gm. of serum, D = urea in 24 hr. specimen of urine, P = weight of the patient. In renal insufficiency for nitrogen the constant rises above the normal figure as given.

The injection of such substances as phloridzin, methylene blue, or the ingestion of NaCl, are tests which are now generally familiar. They are described in detail in the original article.

3. Bacteriuria.

Palazzoli and Vacqueret distinguish at the very outset of their paper between transient bacteriurias occurring during acute infections in which organisms pass out through the urine without proliferating therein and bacteriurias proper in which there is continuous growth of bacteria which select the urine as their culture medium. Various kinds of organisms have been met with and the mode of infection is either descending, through the walls of the bladder, or ascending. In the first variety the primary source is usually the intestine and the organisms are carried through the blood and excreted by a kidney which it has been shown (definitely for the typhoid bacillus at least) is always more or less diseased.

Infection through the bladder wall is usually dependent on lesions of the intestine, the appendix, or especially the generative organs in women. In man the glands of the posterior urethra are a very important factor. Ascending infections are common in women owing to the shortness of the urethral canal and the rich bacterial flora of the ano-vulval region. In little girls with severe diarrhea, a vulvitis, and bacteriuria are a not uncommon sequence. The course of bacteriurias in general depends on the source of infection but periods of remission and exacerbation are very common.

The symptomatology of this affection is meager. There are no characteristic subjective symptoms. Objectively the urine is uniformly cloudy from the time it is passed, hot, out of the bladder and there is no clearing, with formation of sediment, on standing. Moreover the cloudiness is uniform, even when a two-glass test is employed, unless, of course, there is an accompanying posterior urethritis. The urine seems decolorized, the characteristic amber appearance being lacking. The odor may be nauseating or else ammoniacal without the fluid being alkaline in reaction.

The diagnosis is made positively with the microscope by which many bacteria with a relatively minute number of pus cells can be seen in stained preparations. The most important matter is to locate the initial focus of the infection. For this a systematic investigation is necessary. As has been stated the gland of the posterior urethra and prostate are an important source of trouble. The routine method for examining this region should be employed not forgetting the fact that an enlarged prostate may give rise to retention and to ready secondary infection. If the bladder itself is suspected as the primary focus a thorough cystoscopic examination is necessary to rule out the possibility of cystitis. For ruling out the kidney and pelvis, catheterization of the ureters is necessary, which procedure can be done without necessarily traumatizing the delicate mucosa of the parts. Appropriate examinations should be made if an extra-urinary source of contamination is suspected.

The treatment of the condition should begin with forcing fluids, unless some degree of insufficiency exists. Next in importance come the various urinary disinfectants: Urotropine, uraseptine, helmitol, which can be given up to 4 grams (60 grains) daily. Locally daily vesical lavages should be undertaken with AgNO_3 solutions 1:2000 up to 1:500. Instillations of stronger concentrations are likely to be harmful. If the kidney is responsible for the condition the best that can be done is to irrigate the pelvis with AgNO_3 , 1:1000, 3 times weekly. For inflammatory foci connected with the posterior urethra (prostatitis, vesiculitis, posterior urethritis) the usual treatment should be followed. Vaccinotherapy, when used alone, has not given good results, but if combined with the local treatment as outlined above, may prove of value.

4. Treatment of Chronic Anterior Urethritis by Aspiration.

Bronner describes his apparatus and method whereby he claims to cure all chronic urethritides more quickly than by any other procedure, and to succeed often where the ordinary methods fail. His latest apparatus consists of a straight perforated tube (sizes 32 to 60) with a detachable stop-cock. This tube is connected with a water air-pump having a manometer to measure the degree of suction employed.

Before using the apparatus the patient passes water, the entire urethra is irrigated and the bladder is filled with a 1:3000 oxycyanide of mercury solution. The glans being held in the left hand and the meatus widely opened, the oiled tube is introduced like a bougie, attached to the pump, the water faucet opened and suction begun as soon as the stop-cock is opened. The stop-cock regulates the amount of suction. When the desired amount is obtained the stop-cock is closed and the apparatus disconnected, the negative pressure being maintained as long as is necessary. When the aspiration has continued sufficiently an antiseptic solution is injected through the tube with an ordinary syringe and the apparatus is withdrawn.

Instead of the above apparatus an ordinary aspirating syringe may be connected with the author's tube, a manometer being interposed to gauge the amount of suction exerted. The aspirations should be done thrice weekly for 10 minutes each time. At the first aspiration the author uses a suction of 20-25 cm. of mercury and increases the suction gradually at successive sittings (1-2 cm. each time) up to 35-40 cm. He reports 12 cases which have been treated in this manner. (*To be Continued.*)

5. Complications of Gonorrhea: Gonococcic Otitis Media.

Pstrokonski reviews briefly the various systemic complications of gonorrhea and describes a rare case which he observed in the St. Lazare hospital in Warsaw. The patient was a girl of 18, admitted for a gonorrheal urethritis and endo-metritis. There was a slight vaginal and urethral discharge containing gonococci. During the first two weeks there was no fever and a mild cystitis which was present cleared up quickly. During the third week the patient began to complain of right-sided headache, increasing in severity and the temperature rose to above 102° F. On examination there was some increase in the size of the spleen and the lymph nodes of the groin and arm were somewhat enlarged, but those about the head and neck were quite normal. The larynx, nose, and ears were negative. At the same time a diffuse scarlatiniform rash appeared on the thorax and extremities. For the next ten days the temperature fluctuated between normal and 102° and the rash began to fade, but at the end of this time a polymorphous erythema supervened over the skin areas previously involved and the headaches suddenly became excruciating. About this stage of the infection there was noticed a marked tenderness behind the lobe of the

right ear but the meatus as well as the drum seemed absolutely normal. On the evening of the eleventh day there was a sudden discharge of much dirty, thick pus from the ear with a complete relief of symptoms. Intracellular gonococci were found in the pus in large numbers. The patient was operated on, a marked suppuration of the mastoid cells requiring almost complete removal of the mastoid process. Gonococci were again isolated from the middle ear. Recovery was complete in a few weeks, but a slight deafness persisted. The author points out that this must have been a true metastatic infection. He feels that for such cases anti-gonococcic serum will be the treatment of the future.

6. Vaporized Iodin in Urology.

Reynès describes Farnarier's apparatus. This consists of a glass ampoule containing 5-10 centigrams of iodoform which is heated to 110-120° C. The iodine vapor is forced from the ampoule through a U-tube or second ampoule (to prevent regurgitation of urine) into the bladder by means of a force pump, graduated to show the amount of pressure exerted. A rubber catheter, size 20, is used to convey the medication into the bladder. The vapor is retained from three to five minutes.

The treatment is not to be employed in acute cases as the fumes may prove too irritant but this procedure is peculiarly fitted for various kinds of rebellious and painful chronic cystitis including those of the sclerosing tuberculous variety and even in vegetating tumors. These latter however, such as cancer, should first be curetted down to "terra firma" before the gas is introduced.

ZEITSCHRIFT FÜR UROLOGIE

Vol. VII, No. 2, 1913.

1. Pathology and Therapy of Cystitis colli proliferans s. vegetativa. By S. M. Gorodistsch. P. 81.
 2. A Case of Isolated Tuberculosis of One-Half of an Anomalous (Double) Kidney. By B. Dobrotworsky. P. 93.
 3. A Urethral Stone in Bilharzia Disease. By Edwin Pfister. P. 97.
 4. Technic of Suprapubic Prostatectomy. By Jacques Goldberger. P. 104.
 5. The Museum of the XVII International Congress of Medicine. P. 111.
1. Cystitis Colli Proliferans s. Vegetativa.

In this paper, which was read before the Russian Urological Society, the author describes his case of the disease in detail. He concludes that cystitis colli proliferans occurs more often in women because of the obvious tendency for chronic urethritis to go on into urethrocystitis. From its etiology as well as from its clinical picture this disease can be looked upon in men as well as in women as a urethrocystitis chronica postgonorrhoeica, i. e. a residual infection which has become localized in the mucous membrane on either side of the sphincter.

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For the production of this disease it is not necessary to have lymph stasis and the papillary growths at the sphincter can also arise independently of disturbances of the blood and lymph circulation.

The development of papillomata at the sphincter vesical may be looked upon as the result of chronic irritation by gonorrheal pus arising from the pars posterior urethrae and causing mucous membrane hypertrophy, just as the discharge in neglected cases of chronic urethritis may give rise to papillomata in the region of the external meatus.

For the abnormal urgency and frequency in his case the author irrigated the posterior urethra and neck of the bladder with 1:300 to 1:250 albargin solution. A soft olive-pointed catheter was introduced to the pars membranacea and 150 c.c. of fluid used in the irrigation. An attempt to dilate the neck of the bladder and to instil AgNO_3 solution gave very unsatisfactory results. After unsuccessful attempts with other instruments the author finally succeeded in cauterizing the papillary growth through a Wossidlo tube for the posterior urethra. Bleeding was slight and the operation painless. Before the introduction of the urethroscope the bladder was carefully washed with boric acid solution. Then 25 c.c. of a 1% solution of cocaine hydrochloride was introduced into the bladder and allowed to remain for 5 minutes when the endoscope was put in and the fluid allowed to escape.

2. Isolated Tuberculosis of One-half of an Anomalous (Double) Kidney.

The case described by Dobrotworsky is that of a man of 38 who had suffered from painful micturition for one year, the pains coming on at the end of micturition and localizing in the penis, the right half of the perineum, and in the right pubic bone. The urine contained pus and one examination revealed tubercle bacilli. On the right side the lower pole of the kidney was palpable. At cystoscopy the right ureteral orifice was found to be very edematous. The diagnosis of tuberculosis of the right kidney was made.

At operation (which was done under intravenous hedonal anesthesia) the capsulae adiposa and propria were found adherent. The kidney was somewhat enlarged and its surface was lobulated (resembling fetal lobulations). No tuberculous foci were visible on superficial examination. The ureter was freed and ligated low down. The vessels were clamped, the kidney removed, and the stump tied. Examination of the specimen showed at once that it was composed of two fused single kidneys which had two separate pelves and two separate ureters. The second ureter which had been left in the pedicle was isolated and tied lower down. Recovery was complete.

Cystoscopy performed after the operation revealed the two openings of the right ureters, one lying behind the other. The edema had entirely disappeared.

Pathologically, the double kidney was composed of a smaller upper half and a larger lower half. Correspondingly the upper ureter was

thinner than the lower. The lower part was entirely healthy whereas the upper segment showed a full-blown tuberculous ulceration of the papillae (after Israel). The cortex, the pelves, and the ureters were normal.

The writer points out the danger of wrong diagnosis which would follow a possible catheterization of the healthy ureter on the diseased side.

3. Urethral Stone in Bilharziasis.

The stone described by Pfister occurred in a ten-year-old Arab boy who claimed that he had been able to feel the concretion at the root of his penis for some time. At one period it moved a bit forward in the canal. The patient complained of pain in the urethra radiating to the glans and neck of the bladder; there was no retention of urine but the stream was weak and divided and the patient had to press while making water. Externally the stone was palpable in the first third of the pendulous urethra and could be felt with a sound when the urethra was compressed behind it. The urine contained ova of distomum hematobium. The stone was readily extracted with urethral forceps. The round shape of the concretion as well as its high urate content showed that it was originally of vesical origin.

It seems that the passage of bilharzia eggs causes a change in the urethral mucosa, "urethritis petrificans," which favors calculus formation. These changes predominate in the urethra, bladder, and ureters and this explains the relatively great prevalence of stones in these regions rather than in the kidney where all other types of concretions predominate.

The author is the first to publish microscopic sections of bilharzia stones. He found that by immersing the stone in potassium hydroxide solutions of increasing concentration, a strength was reached which allowed of imbedding in celloidin, the cutting of sections, and staining. The stone was found to consist of a small soft central nucleus and an outer brownish peripheral layer. Examination of the central portion showed bilharzia ova lying in a lilac-covered stroma (the stain was hematoxylin-van Gieson) in groups of six or more crowded together in a gelatinous mass.

The peripheral layer consisted of a wide ring of yellowish crystals assuming the rosette forms of uric acid. There were no eggs present here.

4. Technic of Suprapubic Prostatectomy.

Goldberger, writing from Chevassu's clinic in Paris, discusses various points in connection with Freyer's operation for prostatectomy. The author objects to general narcosis with ether because of the bad effect on the respiratory system, and to chloroform because of the circulatory and renal complications it causes. Nitrous oxid anesthesia is very unsatisfactory and not without danger, while spinal analgesia is

not only difficult because of the anatomical conditions obtaining in the old but because it must be regarded as actually dangerous in people of advanced age. The author therefore proposes as a procedure free from danger and technical difficulty the adoption of local anesthesia as described below.

The entire technic of the procedure Goldberger describes as Chevassu's modification of the Freyer operation. It is as follows. The preliminary examination of the patient consists not only in an examination of the bladder but in a determination of the degree of azotemia after Widal, and of the ureic constant after Ambard (Chevassu modification). If the latter exceeds 0.150, operation is dangerous. The day preceding the operation the operative field is shaved and washed with soap and water. When the patient is placed on the operating table a pad is put under the buttocks, an elbow catheter is introduced into the urethra, the penis is protected with a muslin strip, and the skin is painted with iodine as far up as the umbilicus.

For local anesthesia the author uses a 1:200 solution of novocain without adrenalin six to twelve c.c. are injected into the skin; this is then cut through and the subcutaneous tissue is similarly treated with 4-8 c.c. This tissue being divided, a pair of Farabeuf retractors is introduced and then 2-3 c.c. of solution are injected into the (muscle) fascia and finally the muscle itself infiltrated with 4-6 c.c. more of the fluid and divided down to the deep fascia. The bladder is next inflated with 150-200 c.c. of air and the prevesical space anesthetized with 2 c.c. of the solution. The bladder is then drawn upward with a retractor and injected in the mid line with 1 c.c. of solution. Two guide sutures are then introduced into the bladder wall. Aspiration of the bladder is then attempted with a Pravaz syringe and if this fills with air the operator is sure of his orientation.

For the enucleation of the prostate a short general anesthesia with ethyl chloride is strongly recommended by the author. The bladder is incised, the fore and middle fingers of the right hand are introduced into the wound, and with the left hand in the rectum and pushing the gland into reach, the prostate is readily shelled out in from $\frac{1}{2}$ to 8 minutes. The prostatic wound is then thoroughly massaged out by the hand in the rectum, a catheter is introduced through the urethra and its end pulled up to the wound level, and a Freyer drainage tube is inserted into the bladder. The wound is then irrigated through the catheter with 4 liters of sterile hot water. The catheter remains in situ 4 days.

The author gives statistics of 30 cases operated on according to this technic. The age varied from 55 to 85 years. In most cases the patients led a catheter life before operation and the urine was very cloudy. The functional tests above mentioned gave very satisfactory results. The mortality was 10% (3 cases: (1) cachexia, (2) car-

diac failure, (3) bronchopneumonia). There were no deaths from uremia, shock, hemorrhage, or local infection.

5. The Museum of the XVII International Congress of Medicine.

This is an announcement of the congress to be held this year in London, asking for contributions of scientific interest. The specimens will be divided as far as possible to correspond to the sections of the meeting and it is hoped to keep the museum open even for some time following the close of the session. The exhibit will appear in 22 sections as follows: (1) Anatomy, (2) Physiology, (3) General Pathology, (3a) Pathological Chemistry, (4) Bacteriology and Immunity, (5) Pharmacology, (6) Internal Medicine, (7) Surgery, (7a) Orthopedics, (8) Obstetrics and Gynecology, (9) Diseases of the Eye, (10) Children's Diseases, (11) Nervous Diseases, (12) Mental Diseases, (13) Skin Diseases and Syphilis, (14) Urology, (15) Nose and Throat Diseases, (16) Ear Diseases, (17) Diseases of the Mouth, (18) Hygiene and Prophylaxis, (19) Forensic Medicine, (20) Military Surgery, (21) Tropical Diseases, (22) Radiology, Special — Museum Technic.

MISCELLANEOUS ABSTRACTS

Potentia Generandi Despite Bilateral Tuberculous Epididymitis.

Bull (*Deuts. Med. Woch.*, No. 40, 1912) reports the case of a man who had contracted tuberculosis in his youth and whose wife bore him a child in the first year of their marriage. Two years later the patient's right testicle and epididymis were removed for tuberculosis. At this time the left side was already involved and a year later the prostate became affected. There was no further surgical intervention however in order that libido and potentia coeundi might be preserved. Examination of the spermatic fluid showed absence of the characteristic odor and of the Florence reaction and inoculation of a guinea pig was positive for tuberculosis. Nevertheless the man in the meanwhile had two healthy children whose v. Pirquet reactions were negative. The wife never showed signs of a genital tuberculosis.

A Case of Vesical and Urethral Syphilis.

Picot (*Journal d'Urologie*, Nov. 15, 1912) reports the case of a man who presented a rapidly developing stricture of the urethra without apparent cause, there being no previous history of gonorrhea. This was followed by a cystitis which also developed insidiously.

The cystoscope and the urethroscope revealed definite specific (papulo-ulcerated) lesions, as well as a vesico-intestinal fistula with punched out edges in the midst of a sclero-gummatous tissue, and a sclerotic stricture of the urethra (no history of gonorrhea or trauma). The diagnosis of syphiloma of the urethra and of syphilis of the bladder was made and was confirmed by the Wassermann reaction which

was strongly positive. Twenty subcutaneous injections of one centigram each of mercury biniodide were prescribed. Improvement followed the specific treatment.

Radiographic Indications for Pyelotomy.

In making a radiological examination as a preliminary to pyelotomy, Arcelin and Rafin (*Arch. d'électr. méd*, January 10th, 1913 *Brit. Med. Jour.*) insist upon the necessity of the perfect immobility of the kidney. Long exposures, made with inadequate apparatus, have given results which have been confused by movement, and small calculi, which would have been quite visible on a short exposure, have escaped detection. The progress of radiographic technique has now made it possible to obtain renal records within a fraction of a second. The authors state that at their own hospital in Lyons, with a rectifier on the alternating current, they are able to obtain excellent radiographs of the kidney in from one-third to one-tenth of a second, and that even those who do not possess the more powerful outfits may, by the use of intensive coils, secure good radiographs in two or three seconds. An intensifying screen is necessary, as it is only this which permits of such radiographs being made within the period of apnea. Radiological diagnosis of calculi is not to be trusted when respiratory movements take place during exposure. The authors estimate that with these rapid exposures it is possible to see the contour of the kidney in 80 per cent. of the cases, and under such conditions it is easy to say whether or not the calculus is at the site of the renal pelvis. In the remaining 20 per cent, the renal contour is invisible, whatever the technique employed, and these cases constitute a still unsolved problem. One authority affirms that when the radiograph shows the shadow of a calculus to be placed in such a manner that the distance which separates its inner border from the median line does not exceed 5 cm., one may conclude that the calculus is placed in the pelvis of the kidney, with the reservation that this shadow must lie between the transverse processes of the first and second lumbar vertebrae. The present authors state, however, that many calculi of the renal pelvis by no means fulfil these conditions. Out of seventeen calculi for which they have operated by pyelotomy, only four have come within these limits. Some calculi of the renal pelvis project their shadows to the level of the first lumbar vertebra, others to the level of the third. Some, in children, almost touch the shadow of the spinal column; others, in adults, are as much as 75 mm. from the median line. When the contour of the kidney is visible, the radiologist can give the surgeon certain complementary information as to the exact position of the calculus, and by radiographing at different times the mobility or fixity of the kidney and the calculus may also be studied. If a radiograph indicates a calculus of the renal pelvis having ramifications up to the calices, the authors are of opinion that pyelotomy is contraindicated.

Skiagraphy of the Seminal Ducts.

Dr. William T. Belfield states (*J. A. M. A.*, Vol. LX, No. 11) that through an incision in the vas deferens just above the testicle (vasotomy), a solution of collargol or other metallic compound can be injected into vas and vesicle, and skiagrams made of these. Such pictures amplify our limited knowledge of the physiology and pathology of the vas deferens and seminal vesicle, and of the genital functions of the male.

The strength of the collargol should not exceed from 10 to 15 per cent.; the quantity injected at one sitting should in general be limited to 4 or 5 c.c.; injection should immediately cease if pain in groin or rectum occurs, since such pain shows irritation of vas or vesicle, sometimes requiring mitigation by morphin. If the vas be occluded by stricture, severe pain may be caused by the injection of even 1 or 2 c.c. Regurgitation of collargol into the connective tissue around the opening in the vas follows overdistention, and causes a tender induration which gradually subsides, usually without suppuration.

If there be no occlusion of the seminal duct, collargol is passed with the urine for days following the injection, and the emitted semen is black — the latter phenomenon inspired in one patient the fear that his future children might be Ethiopians. When the weaker, non-irritating solutions are used at body temperature, the distended vas and vesicle may expel their contents into the urethra and bladder or even out of the meatus, so that a stream of black liquid flows from the syringe of the operator through the entire genital duct, escaping at the meatus. In these cases the opening of the ejaculatory duct into the prostatic urethra can usually be identified through a modern urethroscope, and a filiform bougie be passed into the duct.

By fastening into the vas a flanged silver tube the injection or irrigation may be repeated subsequently at the discretion of the operator.

Among the features revealed by this method are: (1) a peristalsis of ampulla and vesicle into the prostatic urethra, without the phenomena of emission — a function which explains certain obscure clinical phenomena; (2) the sphincteric closure of ampulla and vesicle; (3) the not infrequent occlusion of the ejaculatory duct, converting vas and vesicle into a retention cyst.

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THE COMPARATIVE VALUE OF CYSTOSTOMY AND URETHROSTOMY IN OPERATIONS ON THE URETHRA

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THE use of diversion of the urine as a prelude to the radical cure of urethral stricture will not be considered in this paper, as the indications are pretty well settled upon and the results have been astonishing, and those obtained in the treatment of fistulae have not been less so. In point of fact a fistula closes in a most surprising way, when, after having closed it by resection, urethroplasty, etc., the flow of urine is diverted. Not much need be said on this subject, as all that applies to the cure of urethral strictures is simply repeated point for point in the case of fistula. I will therefore merely refer to the differences.

Before the systematic use of diversion of the urine in cases of complete excision of urethral fistulae by Prof. Marion, it was really a painful sight to see the patients remaining months and months in the various hospitals with all the annoyances that such an infirmity brings. In spite of what Potherat quite recently said at the Surgical Society of Paris that "about one-half of humanity, and not the least gracious, had adopted perineal micturition and was none the worse off," these miserable persons, far from being content with their condition, demand the repair of their urethrae.

Formerly, a well-organized perineal fistula would be treated by cauterization, dilatation, etc., without any improvement taking place. Then, a sound was introduced into the urethra, the

fistulous tract dissected out and excised and the resulting loss of tissue would be closed by catgut sutures, likewise the soft structures in layers, in such a way that all the layers were solid and the skin completely closed. A permanent catheter was then introduced and left for a week with a result that was most disastrous. After a few days slight disunion would take place in the deeper part from which arose another fistula, and not infrequently the patient was in the same condition after the operation as before. For this reason Prof. Marion has completely renounced this procedure and every case of fistula is treated by local resection of the fistulous portion of the urethra with end-to-end suture of the canal performed over a large sound, followed by diversion of the flow of urine. I have notes of twelve cases thus treated which show that not only the cure was rapid and perfect, but that several of the patients have been previously operated on unsuccessfully by other surgeons.

The question now comes as to the choice of the operation for obtaining diversion of urine in these particular cases of resection of the urethra for fistula. I will not refer to fistula of the penile portion of the phallus because it is evident that perineal diversion is naturally indicated, so that what I have to say will relate only to perineal fistula. Now, in these cases, there will be either a single well-limited fistula whose resection will not require the removal of more than from three to four centimetres of the urethra, the urine is not much infected, so that a temporary urethrostomy behind the closed fistula will be found very satisfactory, still more so because it is devoid of any danger.

Or, on the other hand, there may be multiple fistulae, the so-called watering-pot perineum, requiring a very extensive resection of the urethra. The urine is purulent and therefore it is preferable to keep the focus of infection at a distance by obtaining free vesical drainage. Diversion having been accomplished, the perineal region can be kept clean with little trouble. The catheter can be changed if necessary, but under no circumstances should an instrument be passed per urethram during cicatrization excepting to verify from time to time the amount of calibre and resort to dilatation if required.

Choltzoff (*Vratchebuaia Gazetta*, Jan., 1912), basing his remarks on nineteen personal cases, advises diversion of the urine when undertaking a plastic operation on the urethra or penis. It has given him excellent results in cases of urethral fistula with

suppuration. Besides, this operative procedure is a great aid in the cure of phagedenic wounds of the penis.

Patients afflicted with hypospadias can, from our viewpoint, be classed in two groups. Those in which the abnormal meatus is seated in the balanic, penile or penoscrotal region, and those where the meatus opens in the immediate neighborhood of the anus. Now, each of these two varieties have a special indication.

Many operations have been devised for correcting this serious infirmity, serious because micturition is difficult, erection often painful on account of the cutaneo-mucous band on the under aspect of the penis, the absolute impossibility of fecundation, etc., so that it is a very grave infirmity from the social aspect as well.

But before the employment of urinary diversion was adopted healing by first intention was rarely obtained and later on a supplementary operation had to be done, which in itself was not free from the possibility of a future stricture developing. In the simpler condition of balanic hypospadias the von Hacker-Beck procedure does not present any of these inconveniences for the very simple reason that the urethra, dissected and *advanced* by transfixing the glans up to its apex, preserved the operative wound from contact with the urine. It was not at all the same in the other types of malformation, where the absent urethra had to be reconstructed to a more or less considerable extent.

In this case after the operation it was necessary to leave the unfortunately too classical permanent catheter in the urethra whose increasing inconveniences here again became a factor preventing union *per primam*, namely, erection.

Now by temporary diversion of the urine either by the perineum or suprapubically, considerable security is realized, without which all procedures remain sterile.

I will now consider the second group of hypospadias. No matter what may be the variety of the defect in this group, be it penile, scrotal, peno-scrotal, or scroto-perineal, the method to follow is exactly the same, excepting the first step of the operation, which does not exist in the penile variety. I shall not refer to the procedures by graft, either cutaneous, venous or vaginal, the results of which are not favorable.

The operative technique that I advise comprises four steps, viz: (1) The freeing and straightening of the penis; (2) re-

section of a new urethra; (3) urinary diversion; (4) closure of the abnormal meatus.

(1) *Freeing and straightening of the penis.* A transversal incision is made at the base of the band which retracts the penis. This incision comprises the skin, subcutaneous cellular tissue and, if necessary, the corpus spongiosum. This incision becoming oblong by the straightening of the penis, is sutured transversally. During cicatrization the penis should be held by suitable dressings against the pubis. Two months later, the second step is carried out.

(2) *Resection of the new urethra.* On the under aspect of the penis, on each side of the median line, two longitudinal incisions are made separated about one centimetre from each other, extending from the glans to the neighborhood of the abnormal meatus. Two other incisions, perpendicular to these, branch off at the ends and are about one-half a centimetre in length. These flaps are dissected outwardly. When this has been done three little bands will be seen on the under aspect of the penis, a middle cutaneous one, which moulded around a sound will give the new urethral canal, while the two lateral ones are a raw surface, continuing at their external borders with the dissected flaps. The two flaps must then be brought together over the sound and sutured with fine silver wire. The sutures, and this is important, should be placed as follows: With a Reverdin needle the base of the right flap is pierced, carrying the needle under the lateral band, and the point made to protrude 1 or 2 millimetres outside of the median band. The same is done on the opposite side in a contrary sense and so on. After a sufficient number of sutures have been placed all those on one side are fixed to a rod in which there are holes to receive them. The distance separating the holes is the same as that of the sutures.

The sound being in place and the flaps brought over it, the free ends of the sutures are passed into the holes of another rod similar to the ones already mentioned and then drawing on them they are fixed by small perforated shot or Galli's tubes. All that is left to do is to insert a few catgut sutures on the borders of the flaps in order to have a surface approximation.

(3). *Urinary diversion.* This preliminary diversion is a necessity in all complicated urethral operations. One might possibly be tempted to divert the urine by a catheter placed in the abnormal meatus situated above the point of urethral repair,

but by so doing, the lower part of the wound would be easily infected and all advantage of the diversion would be lost. The same reproach may be addressed to Rochet's procedure, which consists in forming an orifice at the lower part of the newly made urethra in order to introduce a catheter for diversion of the urine.

It is for this reason that Prof. Marion prefers to make a perineal urethrostomy which besides presents the advantage, in cases of a penile or peno-scrotal meatus, of facilitating the after-dressings.

About the tenth day the patient may be allowed to urinate himself by removing the sound. No attention need be given the fistula, as it closes itself in two or three days.

(4) *Closing of the abnormal meatus.* One proceeds exactly as in resection of the new urethra, but only two months after cicatrization is complete. It is also prudent to again resort to urinary diversion.

It is quite natural that the numerous successes reported of late years from the use of diversion in operations on the urethra should tempt surgeons to apply it in cases of rupture of the canal. The recent writings of Devignes (*Thesis*, Paris, 1911) most distinctly confirm the usual insufficiency of the end results of urethrorrhaphy when not combined with diversion and the frequency of stricture.

At the French Surgical Congress in 1910, Marion stated that diversion of the urine was absolutely indicated in rupture of the urethra, although at the time he had not had the opportunity of resorting to it. In the following year, Heitz-Boyer operated on three patients with perineal rupture of the urethra by urethrorrhaphy with diversion of the urine.

The first case was a rupture from a kick on the perineum resulting in urethrorrhagia and retention. At operation it was found that the rupture was incomplete and that there was an upper intact bridge of tissue. End-to-end suture having been done, the urethra was opened at a point behind the repair by a transverse incision and a No. 17 catheter was introduced. This was removed on the tenth day, and four days later the perineal opening was closed. Six months after, although the canal had not been dilated, the perineum was found supple without the least induration and Nos. 50, 54 and 57 Beniqué could easily pass.

The second case was a rupture resulting from a fall

astride; there was urethrorrhagia and perineal tumefaction, but no retention. The rupture was incomplete and narrow. After resection of the injured tissues to the extent of some 15 to 20 millimetres, urethrorrhaphy was done on the posterior end in the bulbous portion (sound No. 17). In spite of a superficial suppuration which necessitated the removal of the cutaneous sutures, the urethral suturing held well. The diversion catheter was removed on the twelfth day and a catheter was passed by the urethra and left in five days to facilitate the closure of the opening. Five months later, the urethra admitted easily Nos. 48, 50 and 52 Beniqué, although the urethra had not been previously dilated.

In the third case the urethra was ruptured by a runover. The rupture was nearly complete, the tissues greatly contused, with urethrorrhagia and retention. After urethrorrhaphy, diversion cystostomy was done. The vesical catheter was left in for two weeks and the opening closed in eight days. Forty days after the operation the perineal wound was almost healed and, although no sound had been passed, Nos. 54, 58 and 60 Beniqué went in with ease.

From what has been said on this interesting question of urinary diversion by way of the suprapubic and perineal routes, it will be an easy matter to conclude as to their respective merits. And in the first place, let it be said that both are easy procedures. If properly performed, neither one greatly increases the time of operating and the vesical or urethral opening never results in fistula. The flow of urine is perfect by either route and all that can be said is that the suprapubic is a little more rapid in closing than the perineal opening, but this advantage is not, strictly speaking, a very great superiority of cystostomy over urethrostomy.

Now to which of these two operations is preference to be given? To urethrostomy when the opening will be far enough away from the seat of operation, otherwise the suprapubic route is to be chosen. Both methods, let it be said, will, according to circumstances, give most brilliant results in all cases of operations on the urethra.

THE EFFECT OF GONORRHEAL INFECTIONS UPON THE MUSCULATURE OF THE GENITO-URINARY TRACT *

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THE effect of gonorrhea upon the musculature of the genito-urinary tract has received but little study up to the present time. Indeed, there is barely any reference to it in the general literature of urology and genito-urinary surgery. It is astonishing how far and wide one must seek to get any definite information on the subject. The brief references are scattered under different headings, and indicate that very little original thought or study has been given this matter.

Most writers, in dealing with the subject of organic stricture, give the more or less perfunctory description of the pathological changes that take place in the muscle layers. The structural change, whichever muscle is affected, insofar as the pathology is concerned is identical, differing only perhaps in the density of the infiltration. The purpose of this paper is to stimulate interest and, if possible, to revive the study of a hitherto much neglected field in urology. The mere narrowing of the lumen of the urethra, or occlusion, whichever the case might be, and its mechanical interference with the function of urination, has received attention in all its phases. It is the remote or reflex symptoms, produced by infiltrations or fibrous deposits in muscle tissue, and their effect not only in the muscle itself but the indirect effect on other correlated muscles, that is here being considered. Moreover, the organ dependent upon the affected muscle for its function is frequently influenced, as will be shown later.

Belfield ¹ has recently studied the muscles of the vas deferens and seminal vesicles. He refers depreciatingly to the anatomists and clinicians for ignoring this subject. Barnett has also contributed some original thought on the anatomy of the vesicles. Kollman, Ultzmann, Kolliker, Hyrtl, Haeckel and Bardeleden, and Elliott are the only other observers, to my knowledge, who have made any contribution to the anatomy of the urogenital apparatus with especial reference to its musculature.

It is evident that irritation produced by gonorrheal exudate

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causing round cell infiltrations, if prolonged, is soon converted into fibrous tissue. This deposit or cicatricial area, if in the muscle tissue, is likely to become a serious source of annoyance to the patient. The symptoms of which he complains may be more or less vague and it is difficult for the urologist to ascribe the cause. These constitute undoubtedly a large percentage of so-called sexual neurasthenics.

As to the effect of gonorrhea on the function of micturition, produced by local irritation in the acute onset of the disease, and sometimes in the acute accelerations of subacute and chronic infections affecting the mucous membrane without involving the surrounding muscular layers except reflexly, we have the so-called spasmodic stricture. By way of parenthesis, so as to make myself clearer on the point, we all know that the mucous membrane alone may be so swollen as to totally or partially impede the urinary flow, and that in most of the spasmodic contractions the mucous membrane is the chief factor involved. We may, however, have a contraction which is purely muscular, i. e., a spasm or inhibition of the muscles, occurring independently or coincident with the swelling of the mucous membrane.

Moreover, gonococci do not always restrict their habitat to the mucous membrane, but invade the spongy and cavernous bodies, and even the meshes of the erectile tissues. Here, for the most part, the infiltration is limited to the tissues immediately surrounding the glands, forming an arcola as it were of fibrous connective tissue.

Mention must be made at this point of the action of the sphincter of the membranous urethra and its supposed power of limiting gonorrhea to the anterior urethra. This muscle is believed by many to keep the urethra closed by a firm tonic contraction, thus preventing the spread of gonorrheal infection from the anterior to the posterior urethra. The compressor urethrae and accelerator urinae muscles which surround the membranous urethra are enclosed by the two layers of the triangular ligament, and made up of striated voluntary muscle fibres which, according to physiological laws, are relaxed when in a state of rest, and generally do not have a sphincteric action. Suppose, for a moment, that this muscle were a true sphincter, and that it did keep the urethra tightly closed, then the question would still arise whether a sphincter muscle has the power of arresting an infection as virulent as that of the gonococcus. I think we are all

pretty well agreed that it could not, since the generally accepted belief is that the perivascular lymph spaces is the route of travel.

You know how the urethra at its posterior portion is surrounded by two layers of muscle fibres, the inner being longitudinal and the outer circular, the longitudinal being continuous with those of the intra-vesicular portion of the urethra. Part of this is unstriated involuntary muscle supplied by the sympathetic nerve fibres via the hypogastric nerve. This portion is continuous with the outer layer of the vesical musculature and forms an integral part of the urethral wall. The circular muscle of the urethra is interrupted, so to speak, in its continuity and arrangement by the prostate gland, which forces its lobes between the fibres of the muscle coat, causing either a displacement or an absorption by pressure atrophy. This muscle gradually increases in thickness as it approaches the posterior end of the urethra, where it constitutes the sphincter vesicae. The investigations of Zuckerkandel and Zeissl, et. al., have shown that this muscle is in a state of involuntary contraction, and when in a state of rest it keeps the urethra closed, preventing the accumulating urine from leaving the bladder except when its nerves are stimulated during the act of micturition, when the muscle relaxes. The other portion of the compressor urethrae is composed of striated voluntary muscle which surrounds the membranous portion of the urethra, between the two layers of the triangular ligaments, and is innervated by the pudic nerve. In spasmodic stricture it is the unstriped muscular tissue which is mainly concerned.

A most interesting series of experiments demonstrating the efficiency of this contraction was performed by Elliott.² This observer "exposed the bladder supra-pubically in a cat and then passed a tube from the bladder a short distance into the proximal end of the urethra, where it was tied in. A second tube was then passed from the distal end up to but not meeting the first tube, leaving a centimeter of urethra between the ends of the two tubes. Fluid could then be made to pass from one tube to the other through the connecting portion of the urethra. Stimulation of the hypogastric nerve caused contraction of the urethra, preventing the fluid from flowing from one tube to the other. In this way he was able to measure the amount of pressure which the urethra was able to support by contraction of its muscular wall. He found that 1 cm. of urethra could be made to uphold a pressure of from 50-60 cm. of water. The hypogastric nerve not only exercises a motor influence over the musculature which closes the

bladder, but it also has an *inhibiting action* over a certain part of the bladder muscle, so that when reflex stimulation of this nerve occurs, there is not only an obstruction of the outflow, but also a diminution in the contractile power of the bladder. The so-called spasmodic stricture has therefore two factors in its constitution and it is probable that in many cases the inhibitory action on the bladder wall is at least as important as the actual spasm of the urethra. Thus, in many cases, although the patient is unable to pass a drop of urine unaided, a full size catheter can be introduced without meeting the slightest resistance. In such cases, also, it is common to find that the bladder is distinctly atonic, and can only be emptied by suprapubic pressure. This is the type of spasmodic stricture which occurs in inflammation of the periurethral tissues. In those cases in which there is a pure spasm of the urethral muscle, and as unstriated muscle is very difficult to fatigue, the spasm can be maintained for a very long time." It is, however, interesting to note the varied expressions of opinion regarding this phenomenon.

Ultzmann³ in discussing the sequelae of gonorrheal infection of the posterior urethra and prostate, says that spasmodic stricture (or spastic contraction) is always a spasm of the external sphincter of the bladder, and this is generally caused by a diseased condition of the prostatic portion of the urethra or of the prostate itself. The funnel-shaped sphincter which represents the prostatic and membranous portions of the urethra contract spasmodically when sources of irritation have localized themselves within its limits. Such irritation localized in the prostatic urethra of course may be due to masturbation, as well as gonorrhea. But prostatic infection, if present, is readily recognized by the usual examination, whereas in masturbation the characteristic prostate shreds are absent, and on examination we find with the sound that the urethra is very sensitive and bleeds easily without there being any evidence of inflammation or gonorrhea. If we then examine the prostatic urethra with the urethroscope, we will probably find either more or less hyperesthesia, localized hyperemia, superficial erosion of the mucous membrane, or a swelling or ulceration of the verumontanum. As for the effect upon the musculature in infections of the seminal vesicles, you know that the ampulla and vesicle are closed by a sphincter of smooth muscle. Belfield refers to this as the "adductor" of the seminal vesicles, and by other investigators (Haeckel and Bardeleden) as the "inter-ampullary muscle." This has been proven by careful dissection

to be a true compressor, whose contraction closes the orifices of ampulla and vesicles. The vas, likewise, has a thick covering of circular muscle fibres and is powerfully contractile.

The ampulla and vesicles being closely bound to the base of the bladder (or trigone) infections of the former may induce bladder contractions, so-called irritable bladder, chronic cystitis, etc., without evidences in the urinary tract, which is promptly relieved by emptying the vesicles.

The study of this subject was suggested to me by a patient whose history was as follows:

J. H., age 34, married 3 years and has two children, carpenter by trade. Has had one attack of gonorrhea four years ago. No other venereal history. Complains of having to urinate frequently, sometimes as often as every fifteen minutes during the day, but never disturbed at night. When he tries to void urine has considerable difficulty. Must wait five or ten minutes before the urine flows, and then it comes with very little force, at first by drops, then in slight spurts and finally in a full stream. On several occasions he has not been able to void urine at all for several hours, though the desire was present and frequently prolonged efforts made. When this happens, he has discovered that by sitting down or defecating he has very little difficulty. This condition has existed for about seven months. His sexual habits are moderate and he says he has not noticed any special difficulty after intercourse. Temperate otherwise in his habits. Examination of his nervous system was negative as to cerebral or spinal disease. His urine examination was likewise negative. Upon examination, the urethra was so sensitive that local anesthesia was necessary for the introduction of sounds. No. 30 F passed with ease; no bleeding; no resistance. The prostatic portion, however, in spite of the 2 per cent. cocaine, was very sensitive. The prostate was infiltrated in both lobes and slightly enlarged, but not unduly sensitive. The expressed secretion was streaky, examination of which revealed abundant degenerated leucocytes but no bacteria. Urethroscopic examination negative.

I was not willing to concede that this case was simply neurotic, and thus temporize with him in the hope of making a "mental impression." Here was a case in which simply neglected foci in the posterior urethra and prostate, ordinarily considered insignificant, but sufficient to constitute a source of irritation, induced peripheral nervous manifestations from the sacral and coccygeal plexi. It is evident if allowed to continue or

"frowned upon" as a sexual neurasthenic his entire nervous and psychic mechanism would have been affected in a very little while. It is true that we have many instances of neurosis without any demonstrable etiological factors to account for their trouble, but in most cases, if studied carefully, by exclusion we are sure to arrive at some definite diagnosis. Not only any chronic inflammatory process, but a simple hyperemia, hyperesthesia, or swelling, or congestion, of the *veru montanum*, may cause reflexly a contraction of the detrusors sometimes referred to as cystospasm. When we recall how abundantly supplied with nerves the prostate is, and its intimate connection with the hypogastric plexus of the sympathetic, the pudendal plexus of the spinal nerves, the sacral and lumbar nerves, one wonders why we haven't more manifestations of sensory or motor neurosis than we have.

I might add that the only treatment this patient received was massage of the prostate every third day, with instillations of potassium permanganate, solution 1:1000.

His symptoms readily disappeared and had no recurrence, though it is now over six months since the last treatment.

I am convinced that these cases are by no means uncommon, and therefore have learned to look upon these so-called "neurasthenics" with an eye of suspicion. More frequently, if we interpret the symptoms properly, we will find them mis- or undiagnosed, and wrongly advised or ill-treated.

How many of us, in our experience as urologists, have dismissed these cases with a shrug of the shoulder or patronizingly administered a rebuke in the form of a sermon to these poor wretches. Is it any wonder that sooner or later they drift into the hands of a quack, to be further buffeted about and discouraged, sometimes to the point of desperation, terminating not infrequently in some form of mental and physical depression that may mean permanent ruin.

We have no way of determining how many of the sexual neurotics have other than a psychic etiological basis, but it is certainly not over-stating the fact that a good percentage may be directly traceable to some unrecognized diseased area which is responsible for an incessant irritation, with its reflex accompaniments and attending nervous and mental disorders.

It therefore behooves us as urologists to bear these facts constantly in mind, and to searchingly inquire into every detail of a given case, and to weigh very carefully all the symptoms and other data. We should examine our patients most diligently,

with all the appurtenances at our command, and what is just as important, maintain an unbiased attitude with regard to the diagnosis, so as not to let any foregone or presupposed conclusion influence our judgment. Having done this, we may conscientiously and intelligently proceed with treatment, and not until then have we a moral right to assume charge of such a case.

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908 PINE STREET,

SEXUAL ABSTINENCE AND NERVOUSNESS *

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IN opening up for discussion in an association of general practitioners of medicine so old and time-worn a subject as this of the relationship between sexual abstinence and the functional neuroses, I am actuated by three considerations: (1) the study of the sexual life is still omitted from the curricula of our medical schools, and, consequently, physicians are as ignorant of the sexual functions as laymen are; (2) there is still no approach to unanimity of opinion, even among specialists, on any phase of the many questions suggested by and emanating from the subject; (3) the facts obtained by the studies and investigations of Freud and his disciples throw so much light on the *vita sexualis* and are so suggestive and significant that they are bound to be of the greatest interest to physicians, sociologists, moralists, pedagogues, and others having the welfare of humanity at heart. It is no exaggeration to say that without the guidance of Freud's teachings and the application of his method of psychoanalysis it is impossible to get at the truth concerning the sexual life of modern civilized human beings. Almost all persons, even invalids, consider their sexual life to be so personal and private a matter that they do not speak of it even to their medical adviser; physicians share the conventional reticence of their patients and, in addition, lack the tact and ability to elicit the facts; and women, even when questioned, almost always refuse to give up the truth about their sexual life. Besides, very few physicians, and still fewer laymen, associate their nervous and many other ailments with disturbances or abnormalities in the sexual functions.

"NERVOUSNESS" AND SEXUAL RESTRAINTS.—And, as a matter of fact, Freud was the first one to maintain and champion the existence of a relationship between the tremendous increase of "nervousness" that characterizes modern civilization and the sexual practices resulting from our moral standard. Careful consideration of the clinical data proves that the influences conventionally assigned as the causes of nervousness, such as the excessive use of tobacco, coffee, or tea, alcoholism, overwork, the strain and stress of modern civilization, etc., are wholly inadequate.

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quate to account for the great increase in the number of neurotics, or to throw light on the great variety of symptoms manifested by different patients. "Nervousness" occurs very frequently even among total abstainers from the chronic intoxicants, in those who "take life easy" and in those who are not overburdened with culture. Very early in his investigations Freud became convinced that the increase in the neuroses is the direct result of the checks and restrictions which invest the sexual life of the more highly civilized communities and that only in this sense can modern culture be held accountable for the vast and ever-increasing number of neurotics. All later experiences only go to confirm his dictum that no matter what other factors may be at work, *without some departure from the normal sexuality of the individual there can be no neurosis*. The essence of all these abnormalities is, as I shall show, the non-obtainment of sexual gratification,—the non-gratification of the libido.

INFANTILE SEXUALITY.—For the proper understanding of our theme, it is of the utmost importance to say first something about the sexuality of infancy and childhood. Contrary to general belief and the statements even of experts, the sexual instinct does not spring into life suddenly about the age of puberty. The sexual instinct accompanies man on his living journey from the moment of his birth to the moment of his dissolution, all the while undergoing a definite course of evolution and having definite characteristics for each period of the individual's life. In the earliest period of his childhood a human being is almost wholly *auto-erotic*, i. e., he obtains sexual gratification chiefly from his own body; but inasmuch as the genital glands are undeveloped and have no sexual function, the genitals proper play only a small part, but a by no means insignificant part, in the child's sexual activities. All truth-telling parents have observed their little darlings rubbing, pulling, or otherwise playing with their genitals—masturbating. Young infants, however, obtain their sexual pleasures chiefly from portions of the body known as *erogenous zones*. By an erogenous zone is meant a portion of skin or mucous membrane the suitable stimulation of which produces a pleasurable sensation of a sexual nature. *The lips* are a very important source of sexual gratification for infants, as may be judged from the frequency and pleasure with which children pass their time in sucking various parts of their body, e. g., the toe, the thumb, the tip of the tongue, or other object. Another important source of sexual gratification in infancy is *the anal zone*.

The pleasure derived from the passage of hardened faeces is such that the child holds back the evacuation of his bowels as long as possible and this lays the foundation for obstinate constipation and other intestinal disturbances. Rubbing of the anal zone with the fingers is not at all rare in children. *The urethral zone* also has tremendous sexual significance for infants; and this accounts for the frequency and obstinacy of bed-wetting by night or day and other bladder disturbances. Clinical experience shows that when wetting of the bed does not replace an epileptic attack, it means a pollution. *The skin* is the erogenous zone par excellence and is the seat of the pleasure derived from being tickled, stroked or spanked, from scratching, taking a warm bath, etc.

Besides the auto-erotic pleasures emanating from the stimulation of these and other erogenous zones (secondary sexual organs) young children also derive sexual gratification from activities relating to other persons than themselves. Chief among these are the pleasures obtained from exhibiting his genitals to his comrades and elders (*Exhibitionism*), looking at the genitals of others (*Voyeurism*), watching other persons attending to their excretory functions, and inflicting suffering upon others (*Sadism*) or suffering themselves (*Masochism*). This by no means exhausts the sources of sexual pleasure in infancy but it is sufficient to show the justice of Freud's dictum that as regards their sexuality infants are *polymorph-perverse*, i. e., by nature predisposed to all sorts of sexual perversions and to inversion. In connection with this it is important to bear in mind that just as the normal individual is to a certain degree anatomically hermaphroditic so is he normally functionally bisexual, and that in the course of his evolution the homosexual tendency is stunted, dwarfed, repressed, and the heterosexual developed. That the child's sexual curiosity and sexual activities are accompanied with fantasies involving his parents or other immediate relatives goes almost without saying.

THE SEXUAL LATENCY PERIOD.—The period of infantile sexuality is followed by the period of latent sexuality (6th to 13th or 14th year) which is characterized by the cessation of masturbation, the repression of the sense of sexual gratification emanating from the erogenous zones and from the partial impulses, the further development of the genital organs, the evolution of those psychic forces (disgust, shame, moral and aesthetic ideas) which serve to inhibit and restrict the sexual life, and the deviation of sexual energies from sexual aims to new and higher aims,

viz.: in the interests of education and culture. The extent to which the individual's sexuality can be sublimated or refined into energies of other sorts varies with different individuals just as does the intensity of the sexual instinct; but in only very rare instances is it possible to transmute all of one's sexual energies into energies and activities of other sorts. In a very large number of children there is a breaking through, a curtailment or suspension of the latency period as a result of a spontaneous sexual prematurity, and there ensues a period of all sorts of perverse sexual activities. When this happens, the subsequent psychic control of the sexual impulse becomes a very difficult matter and there results either the fixation of a perverse tendency or the development of a neurosis.

PUBERTY AND ADOLESCENCE.—With the advent of puberty very important anatomical, physiological, and psychological changes take place in the human economy, most of which are too well-known to be enumerated here. Less well known and little understood, but of very great importance, are the changes that take place at this time in the internal secretions of the thymus gland, the hypophysis cerebri, the pineal gland, the thyroid gland, the adrenal bodies, the testes, ovaries and, perhaps, other glandular structures. With these changes there go along very important and complex functional changes in the sexual sphere. The sexual impulse loses its auto-erotic character, becomes hetero-erotic and acquires a new aim, the discharge of the sexual products; the partial sexual impulses coöperate in the production of the new and extremely pleasurable sexual aim and the erogenous zones are subordinated to the primacy of the genitals. Obviously all these changes are brought about in the interests of the impulses of self-preservation and the propagation of the species.

The sexual apparatus of the adult is aroused to activity by various stimuli emanating from three sources, viz. (1) from the outer world through the erogenous zones (eyes, ears, etc.); (2) from the presence within the body of various hormones and sexual substance, and (3) from the psychic sphere. Very little reflection will show that modern society is very rich in stimuli to the sexual impulses. We need mention only the costumes of women (revealing what they are intended to conceal), cosmetics and perfumes, erotic dances, romantic novels, suggestive jokes, sentimental pictures, pornographic "literature," the sexual drama and sensuous music. The housing conditions of the poor are particularly calculated to arouse the sexual passions of our boys

and girls before and after puberty. The mental concentration demanded of children in schools and colleges, the strain and worry associated with passing examinations, the exhilaration accompanying various kinds of muscular activity and mechanical excitation of the body, the stirring up of the affective processes by theatrical displays, etc., all tend powerfully to excite the sexual impulses. In addition to all these forces, very few boys and girls escape seduction into evil practices by comrades and older associates.

As a result of all these and other stimuli there is brought about a state of sexual excitation which manifests itself in numerous physical signs as well as in a peculiar, unpleasant state of psychic tension which craves for urgent relief. This coveted pleasure and relief can normally be brought about only in one way: by the discharge of the accumulated sexual substance during normal coitus.

NORMAL COITUS.—That normal coitus should accomplish its object of freeing the sexual tension and temporarily quenching the sexual desires it is not sufficient for two people of opposite sexes to perform the sexual act. Normal coitus requires not only the discharge of sexual substance but the gratification of all the accessory sexual components before the attainment of the "end pleasure" (the discharge). Before there can be a complete and adequate discharge of the accumulated libido, there must be a complete self-surrender to the task in hand, an absence of all restraining influences (fear, shame, disgust, etc.), and an augmentation of the sexual tension by the stimulation of certain of the erogenous zones and partial impulses (kissing, hugging, tickling, touching, etc.). In other words, there must be that overvaluation of the sexual partner and of every part of him or her that constitutes love. Unless these conditions are complied with, there ensues only a partial liberation of sexual tension, and in a short time a chronic sexual toxemia results.

OUR MORAL STANDARD.—The conventional, i. e., theoretical, morals of the most highly civilized communities do not permit adolescents and adults to indulge in normal coitus before marriage, and if they do not marry, they are assumed to remain chaste until death. Widows and widowers must also refrain from sexual intercourse until they remarry. In other words, sexual indulgence is restricted to those who have entered into monogamous marriage, and the form of indulgence is limited to the union of the genitals in normal coitus. Homosexual and perverse practices are considered very serious offenses against morality and pun-

ishable by imprisonment and ostracism. Indulgence in sexual gratification by the unmarried is not considered criminal but sinful and immoral. Owing to the probable consequences women particularly are enforced to chastity. And when one takes modern social and economic conditions into consideration and the consequent practical inability of young men and women entering into marriage until they have established financial independence from their parents, it follows that they are required to refrain from sexual indulgence until they are anywhere from 25 to 35 years of age.

CERTAIN PECULIARITIES OF THE SEXUAL INSTINCT.—One of the best established results of modern psychanalytic research is the fact that the sexuality of different individuals varies (1) *quantitatively*, (2) *qualitatively*, (3) *as to capacity for sublimation*, and (4) *as to imperiousness*. Just as persons vary as to the quantity of food, sleep, drink or rest that their constitutions require, so do they vary as to the quantity of sexual indulgence requisite to gratify their libido. Some are content with coitus once a week, or once a fortnight; others require it daily or even several times daily. Even more important than this are the qualitative differences among individuals. As a result of *congenital predisposition* and *acquired tendencies resulting from infantile experiences*, the normal evolution of the sexual impulse from the infantile bisexuality to the adult hetero-sexuality is interfered with in various ways and there result all sorts and degrees of inversions and perversions. By *inversion* we mean that form of sexual aberration which consists in the sexual attraction of one individual for another individual of his own sex. Individuals possessing this trait may be divided according to Freud into three classes: those who are *absolutely inverted*, *amphigenously inverted*, and *occasionally inverted*. The *absolutely inverted* are characterized by a total indifference or repugnance for persons of the opposite sex and therefore are incapable of normal coitus or derive no pleasure in its performance. The *amphigenously inverted*, or psycho-sexual hermaphrodites, enjoy sexual relations with either sex. The *occasionally inverted* are normal heterosexual persons who, because of external conditions, may find sexual gratification in a person of the same sex. As to the sexual aim of inverts it must be borne in mind that they are by no means all guilty of such acts as *pederasty* (intercourse per anum), *fellatorism* (intercourse per os), etc. In fact *masturbation* is probably just as frequently the sole sexual aim as all

the others combined, and a purely *ideal love* (i. e., without any sexual act) is extremely frequent in inverts. Then too one must not forget that there are many perfectly normal (i. e., sane) individuals who choose for the sexual object children, and others, notably in the country, who are attracted by animals (*zoophilia*).

By a pervert we mean a heterosexual individual whose sexual aim is not normal coitus but some other form of sexual activity. Freud divides the perversions into (a) *anatomical transgressions of the portions of the body destined for the sexual union* and (b) *lingering at the preliminary excitants to the sexual aim* to such an extent as to take the place of the normal aim. A study of a large number of pervers has shown that almost any portion of the body may be utilized as genitals, e. g., the mouth zone, the anal zone, the breasts, the axillae, etc., giving rise to the perversions known as fellatorism, pederasty, sapphism, etc. When the usual (i. e., normal) preliminaries to normal coitus are prolonged to such an extent as to form them into new sexual aims and to do away with the desire for the normal sexual act, we have such perversions as exhibitionism, voyeurism, mutual masturbation, sadism, masochism, etc.

Under perversions, too, we must include the large number of *fetichists*, i. e., persons who substitute for the normal sexual object (a person of the opposite sex) some object which is in some way related to it but which is totally unfit for the normal sexual aim (coitus). In addition to these we must mention those aberrations which may properly be described as *morbid perversions* i. e., cases in which the normal impulse is supplanted by cravings incompatible with the normal resistances of shame, disgust and fear. Among these we include urolagnia, coprophilia, etc. The proportion of the individual's sexual energies that lends itself to sublimation or conversion varies greatly; some may sublimate a very large part, others only very little, and in no case is it possible to sublimate all of it, i. e., to do away with the sexual craving altogether. The sexual instinct cannot be crushed: it may be abused, maltreated, etc., but, like murder, it will out. The instinct is so imperative in its demands that it is normally only very poorly controlled (inhibited) by the higher psychic activities. This instinct is stronger, more insistent and more imperative than the voice of conscience or religion or the fear of disease. Nature cannot be thwarted in its designs. The continuous production of sexual substance, the constant production of the hormones, and the pressure on the sexual reservoirs, pro-

duce and maintain a state of sexual tension and a craving for relief which is heightened by the manifold stimulation of the erogenous zones to such an extent as to make the performance of the sexual act almost imperative. In this way nature assures the propagation of the species.

SEXUAL ABSTINENCE DEFINED.—The failure to take the preceding facts into consideration has resulted in a failure hitherto to reach a satisfactory definition of the term "sexual abstinence." Every writer on the subject gave a different definition. Most writers heretofore have considered him abstinent who refrains from coitus with a person of the opposite sex. Obviously such a definition leaves out of consideration the large number of inverts and perverts and masturbators who derive sexual gratification in other ways than in normal coitus, and yet these are certainly not abstinent. And on the other hand a pervert or homosexualist may indulge in normal sexual intercourse without obtaining the least gratification from the act; on the contrary he or she may be repelled by a person of the opposite sex and be disgusted at the act. In such a case there is absolutely no discharge of the libido, no liberation of sexual tension, no relief from psychic discomfort, but on the contrary a damming up of the libido, a further intoxication, an increase of psychic discomfort, and such a person is really abstinent though he indulges in coitus daily. Perverts and inverts are sexually abstinent if they refrain for a long time from the particular form of sexual indulgence which gives them sexual gratification. A person who refrains from sexual intercourse with a person of the opposite sex but derives sexual gratification in other ways (e. g., masturbation, fetichism, etc.), is only *apparently sexually abstinent*; whereas a person who refrains from that particular form of activity which gives him sexual gratification, although he have occasional or frequent discharges of sexual substance, is *really sexually abstinent*. We thus reach V. Muller's definition of sexual abstinence as '*abstinence (for a long time) from physical gratification of the type of sexuality characteristic of the person concerned*' (Sexual-Probleme, 1909, p. 309) or refraining from the specific act called for by the individual's libido. It goes without saying that in the discussion of this topic we assume the existence of a sexual appetite and the presence of normal genitals. A person born without a sexual instinct or with deformed organs cannot be included in the study of the normal. A word of warning must also be sounded against confounding

"sexual abstinence" with "chastity" or "sexual purity"; the two conceptions have nothing to do with each other.

CAUSES OF ABSTINENCE.—Considering the imperious nature of the sexual instinct and the consequences resulting from the failure to gratify it, we must consider the causes that lead to sexual abstinence. For our purpose we may divide sexual abstinence into two classes: *voluntary abstinence* and *involuntary abstinence*. Involuntary abstinence, to take the latter first, results from causes beyond the individual's control and often without his knowledge; e. g., (1) indulgence in a form of sexual activity which is not calculated to gratify the libido peculiar to the individual concerned. Chronic masturbators, invert, perverts, persons dominated by an incest complex, women who do not love their husbands, etc., who indulge in coitus without obtaining gratification, are involuntarily abstinent. In general it may be said that involuntary abstinence results from an arrest of development at some infantile stage of sexuality (fixation); or a regression to some infantile stage. The reasons for voluntary abstinence are numerous, but only the chief of them can be enumerated here briefly: (1) the inability, owing to pecuniary considerations, of the man to hire the services of a *puella publica*; (2) the impracticability, owing to economic considerations, of the adult male and female to enter into marriage and assume the responsibilities of parenthood; (3) the fear of pregnancy; (4) religious, moral and ethical considerations; (5) the fear of venereal infection from coitus with a *puella publica*; (6) separation from the lawful sexual mate because of business and other considerations; (7) the fear of injury to bodily health in persons suffering from diseases of the heart, arteries, lungs, etc.; (8) marital disharmony and incompatibility; (9) vanity and social duties (in women); (10) the fear of injuring the fetus in the latter months of pregnancy; (11) mechanical interferences to the act, e. g., obesity, late months of pregnancy, etc.; (12) the desire to limit the number of offspring; (13) the fear of the law for infringing on restrictions against homosexuality and perversions; (14) fear of social ostracism; (15) fear of injury to health or to mind from masturbation; (16) turning away from persons of the opposite sex because of unhappy experiences with them, etc. Congenital absence of libido and deformity of sexual organs are obviously not considered here.

ABSTINENCE IN THE MARRIED.—Paradoxical as it may sound, a very large percentage of married people are abstinent.

Marriage, we may add, is a civic institution having for its purposes mutual sexual gratification and the preservation of health. After the age of puberty young men and women are urged to remain absolutely abstinent and to husband their energies in anticipation of marriage. As a result of the high cost of living, starvation wages, the desire to live up to the ever-changing fashions, to enjoy the benefits of modern inventions and work-saving devices, to frequent the theatres, to discharge one's social duties, and, above all, the desire to shirk the difficulties and responsibilities of begetting and educating children, almost all married people resort sooner or later to some method of preventing conception. Various alleged preventives are soon found to be unreliable as protective measures. Then resort is had to coitus condomatus, coitus reservatus, etc., although these methods do not gratify the libido. If the husband refuses to adopt these methods of intercourse, quarrels ensue, and sooner or later the married couple abandon sexual relations altogether or resort to masturbation. Psychic causes, e. g., frigidity, psychic impotence, etc., also frequently lead to abstinence. Organic diseases, e. g., chronic urethritis, chronic congestion of the prostate, etc., resulting in ejaculatio precox also cause abstinence. If as a result of sexual irregularities, tampering with nature, the husband or wife becomes sick, the irregular coitus ceases and it is not long before the husband or wife or both look for gratification elsewhere. So also if sexual relations cease because of the already too large family. Other important and frequent causes for abstinence in the married are the too common dullness and apathy and indifference which characterize modern marriage; most married women become tawdry and careless housekeepers and their husbands mere wage-earners or, vulgarly put, mere "meal tickets." Of real sympathy between husband and wife our marriage system knows only exceptional instances. Quarreling and bickering are only too common. If there weren't so many obstacles to divorce they would be the rule. It is a sad truth that in modern society marriage means the death of love, and with it sexual gratification is even more impossible than it was before marriage. Without sexual love, spiritual love between man and wife is impossible. Thus marriage, modern marriage, is a chief cause of sexual abstinence, of serious psychic conflicts, and of functional and organic diseases. And from this point of view, even if from no other, modern marriage is a failure.

ABSTINENCE IN THE CLIMACTERIUM.—The general belief en-

tertained even by physicians that the climacterium in women and the senium in men are characterized by the extinction of the libido is utterly untrue. As a matter of fact, the occurrence of these periods coincides in almost all individuals with a sudden and intense augmentation of somatic sexual excitement. Why this should be so is not known, but it seems to be dependent upon a disturbance in the chemistry of the hormones. In elderly men we may frequently find a diminished potency with a great increase in somatic sexual excitement, and as a result of this disproportion there is a failure on the part of the psyche to consume the sexual excitement and thus again there results sexual abstinence. In women the involution of the reproductive organs is usually accompanied with such an immense increase in the libido that they are disgusted at it, and in consequence they refrain from sexual indulgence or are incapable of psychically consuming the augmented excitement. In this way it becomes a comparatively simple matter to account for many "nervous" disturbances occurring in elderly people.

MANIFESTATIONS OF ABSTINENCE.—Many persons, medically trained and otherwise, actuated by religious and moral motives, assert that sexual abstinence is not injurious to health. But religion and morals have no place in a scientific discussion of a medical problem. In their discussions the advocates of abstinence point out cases in which abstinence — by which they mean refraining from sexual intercourse with a person of the opposite sex — was not followed by disease. But this argument proves nothing, no more than the fact that not everyone who has the Klebs-Loeffler bacilli in his throat develops diphtheria proves that this germ is not the true cause of diphtheria. Others emphatically assert that they never saw evil results follow abstinence. But this only shows that their observations were very limited, or that their powers of observation are limited, or that they mean something else by abstinence than we do, or that they willfully close their eyes to the truth. Similarly the argument that some persons have been abstinent without developing organic disease or neuroses does not prove that abstinence is not injurious to most persons. It all depends upon the individual's psychosexual constitution, the quantity and quality of one's libido, etc. Besides, many persons never tell the truth about their sexual transgressions and others are guilty of sexual activities without being aware that they are so. It may be of some interest to enumerate the great variety of opinions entertained on this subject by

modern writers. (1) There are those who claim that abstinence is harmless (Cramer, Finkler, Gaertner, Gruber, Gruetzner, Hoche, Kraepelin, Lassar, Orbow, Schottelins, Seifert, Selenew, Tuczek, etc.); (2) that it is harmful in some cases (Gruber, Juergensen, Hensen, etc.); (3) that though it is harmless, normal intercourse is preferable (Strümpell); (4) that it leads to masturbation but is preferable to venereal disease (Hoffmann); (5) that it prevents venereal disease (Strümpell, Hoffmann); (6) that it is harmless up to the age of 30, but that after that it tends to produce psychic anomalies (Rumpf, Leyden); (7) that it leads to masturbation and hysteria in some cases (Heim); (8) that it is incompatible with health (Ellis); (9) that it leads to unnatural practices (Nescheda); (10) that it improves the will-power (Weber); (11) that it is good up to the age of 25 (Tarnowsky, Tschick); (12) that it is harmless up to 25 (Orbow); (13) that it is beneficial at all ages and conserves the individual's energies (Popow); (14) that it is neither normal nor beneficial and as a rule leads to masturbation (Blumenau); (15) that it is harmful after 20 and may cause serious disturbances besides impairing one's capacity for work (Erb), etc.

This great variety of opinion shows only that the methods of observation hitherto employed were unsuited to the study of the problem. A careful reading of the writings of former sexologists, neurologists, etc., shows that the respective writers knew so little of the sexual instincts in comparison with what we know to-day that their conclusions are utterly worthless. Without a thorough knowledge of the Freudian technique and the psychoanalytic study of "nervous" patients no one can ascertain the truth about the *vita sexualis* of modern cultured human beings. Such a study of neurotic patients of all sorts has convinced Freud and his school that "the overcoming through sublimation, i. e., deflection of the sexual energies from sexual aims to higher cultural aims, succeeds only in the minority and even in them only temporarily, and least easily in the period of fiery youth. Most of the others become neurotic or come to grief in other ways" (Freud, *Sammlung*, II, p. 186). Freud has come to the conclusion that the subduing of so powerful an instinct as the sexual requires so much of an individual's energies that beyond the age of 20 it is no longer unobjectionable and leads to neuroses besides other ills. Nature punishes every attempt to thwart the sex instinct. Health is impossible without love.

All clinical experience goes to show that the vast majority of

civilized human beings are so constituted that if they live sexually abstinent for a considerable period of time, which period varies with different individuals according to their psychosexual constitution, predisposition to neuroses, physical constitution, environment, infantile and later experiences, education, morals, etc.,—they inevitably and necessarily suffer from a large variety of symptoms. Among these are an impaired capacity for work, depression; lassitude; a falling away from friends; a feeling of indifference about one's clothes, appearance, work, food, and social duties; a lack of joy in life; sleeplessness; weakness of will; loss of ambition; dreaminess and listlessness; distressing dreams; obstinate contipation; attacks of palpitation; frequent headaches, etc. Students are conscious of an impairment of memory, an inability to concentrate their attention upon their studies; they fall behind in their work and fear that they are doomed to failure in life and to prove a disappointment to their relatives. And thus many do indeed waste the best years of their youth. The suppressed sexual energies strive to be let loose, to find a vent. Erotic thoughts and fantasies permeate almost all of the abstinent's activities and disturb their sleep at night and interfere with their work by day. The occurrence of pains in the testicles and in the cord, a feeling of weight and heaviness in the prostate, an occasional "wet dream," or a slight seminal flow from the urethra during defecation, etc., cause them a great deal of worry which at times leads to a state almost identical with melancholia. Not infrequently there occur all sorts of indefinite pains in the back, in the limbs, in the head, etc. Many suffer from sparks before their eyes, trembling of the hands, stammering, a slowness in recollecting customary and familiar phrases, an inability to speak connectedly, and so forth. The married and those who have once been married are especially unable to endure abstinence. Once the sexual appetite has been gratified, it craves for more and so insistently that it requires all one's energies to resist it.

The general opinion that girls and women can endure abstinence better than men is entirely unfounded in fact. On the contrary owing to numerous causes,—the occurrence of the menses and consequent congestion of the sexual organs, their sentimentality, their suggestibility, modern dress, the perusal of romantic literature, participation in public dances, etc.,—women are less able to endure abstinence. Woman lives essentially for love, and love is sexuality. In mild cases girls are moody, flighty, sentimental, and inclined to mysticism. Later there occur irritability,

exaggerated emotionalism, blushing on the slightest provocation, flushing up when addressed by a man, confusion, timidity, stammering and a feeling of weakness when spoken to by a man, a fear of blushing, etc. Erotic fantasies color all their activities and give rise to a feeling of guiltiness and unworthiness. Suicidal ideas and impulses, as also the fear of insanity, are not at all uncommon.

The familiar portrayal of the "old maid" as pale, haggard, surly, moody, capricious, irritable, excitable, unsatisfied, discontented, and "cranky," is too frequently not an exaggeration of the truth. That these manifestations and many, many more are due to abstinence is proved by the change that comes over her when she is happily married. The woman whose libido is gratified is bright, lively and happy; her eyes are animated, her step elastic, her voice sweet, her disposition amiable and cheerful; she has no aches and no pains; love dwells in her bosom and she radiates happiness on all who come under her influence. Her sister who does not obtain sexual gratification is anything from a confirmed invalid to a veritable Xanthippe.

ORGANIC DISORDERS RESULTING FROM ABSTINENCE.—It has been very often denied that organic disorders may be dependent upon sexual abstinence; but there is absolutely no reason for rejecting the assertion of careful clinicians that a large number of ailments result directly from abstinence. Chief among these we may mention congestion of the testes, the so-called "painful testicle," testicular neuralgia, prostatic congestion, congestion of the seminal vesicles, orchitis, epididymitis, and even atrophy of the testes. In women we may safely attribute to sexual abstinence the occurrence of the following conditions: anemia, loss of flesh, congestion of the ovaries, ovarian neuralgia, leucorrhoea, dysmenorrhoea, amenorrhoea, menorrhagia, metrorrhagia, endometritis, perimetritis, and a condition of thyroidism. The discussion of the pathogeny of these conditions is outside the scope of this essay.

BENEFITS RESULTING FROM VOLUNTARY TOTAL ABSTINENCE IN ADOLESCENTS.—Inasmuch as moralists and educators are so persistently advocating total abstinence in unmarried adolescents in the face of the constantly accumulating evidence of the injuriousness of such abstinence it is not alien to our purpose to at least enumerate the benefits accruing to the individual from a purposive refraining from sexual activities of every kind. All observers are agreed that up to a certain age, say, about 20 years, the exer-

tion of the will in subduing erotic desires tends to steel the individual's character and to strengthen his will-power; it teaches one to forbear and renounce the gratification of the senses; it impresses one with the conviction that life has nobler purposes and more exquisite pleasures than the gratification of the flesh; it directs the individual's energies into other, more useful and acceptable, channels, e. g., education, religion, athletics, etc.; it teaches the value of perseverance; it keeps its votaries single till they are fit to enter upon marriage; it secures to the individual that happiness which emanates from self-approbation, and — most important of all — it prevents venereal infection. In the propaganda of modern reformers chief stress is laid upon the dangers of contracting gonorrhea, chancroid and syphilis, and of becoming afflicted with all their possible complications and sequelae. In other words, the attempt is made to frighten young men and women into a life of abstinence. But the propagandists close their eyes to the following *facts*: abstinence is not chastity; that notwithstanding all their best efforts, some persons cannot be abstinent; the ill-effects of spending a large part or almost all of one's energies in the struggle against the sexual appetite outweigh the benefits; that fright is extremely liable to precipitate the individual into neurosis; that the individual and society suffer more from abstinence than they gain; that venereal infection does not necessarily result from non-marital sexual indulgence; that the venereal diseases can be stamped out and are going to be robbed of their terrors by specific remedies, and furthermore, that it is far more preferable to take one's chances with venereal infection than with total abstinence. The ill-effects of abstinence are far greater than those following venereal disease. And, if the truth must be told bluntly, not one individual in a hundred is wholly abstinent for any considerable time after puberty.

THE SEQUELAE of sexual abstinence as we have defined it are so numerous that it is impossible to do more than sketch them in the most meager outlines in these few pages, notwithstanding their tremendous importance to the individual, to society and to civilization. The most important pathological and psychological conditions predisposed to and resulting directly or indirectly from sexual abstinence are the following: masturbation, pollutions, spermatorrhoea, impotence, frigidity, homosexuality, perversions, true neurasthenia, apprehension neurosis, conversion hysteria, apprehension hysteria, phobias, compulsions, hypochondria, crimin-

ality, kleptomania, pyromania, melancholia, paranoia, dementia precox, etc.

ONANISM.—The most frequent, the most serious, and almost inevitable result of the attempt to live sexually abstinent after puberty is Onanism. By this we mean any form of sexual activity other than normal coitus between two persons of opposite sexes; but in a more restricted sense onanism means the obtaining of sexual gratification by the manipulation of one's genitals. In consequence of the sexual hyperesthesia resulting from sexual abstinence there occur frequent erections, congestion and titillation of the genitals which indirectly lead the individual to touch his genitals or to squeeze them between his thighs; from this to masturbation is an easy step. Coitus interruptus, coitus condonatus, etc., perversions, homosexual practices, prolongation of the forepleasure, etc., are in most instances only forms of onanism. Some form of sexual activity other than normal coitus is so universally practiced at certain periods that it may almost be said that onanism is a normal physiologic process. There is probably not one normal individual out of a hundred who has not masturbated at some time of his life, especially in infancy, childhood and early adolescence; but it is not at all rare at any period of life, in the single as in the married. Because of physical and psychological reasons masturbation is more easily accomplished and more commonly practiced among females than among males. In infancy onanism is physiological and is the expression of the normal autoerotism; in the sexual latency period masturbation is not as frequent and occurs probably as a result of instruction, seduction or a congenitally excessive sexual appetite and a diminished capacity for sublimation. After puberty it is the natural substitute for normal gratification in persons who for various reasons cannot obtain the latter; in the married it results from the failure of coitus to gratify the libido. Whenever the individual fails to find in his environment the means of gratifying the libido, the libido is introverted and the individual resorts to that means of sexual gratification which was characteristic of him in his infancy; for the time being he reverts to the infantile autoerotism.

But masturbation is only a poor and inadequate substitute for normal coitus. As a compromise between the normal, healthy gratification of the heterosexual love instinct and the desire to comply with the dictates of our morality and religious teachings, it is dangerous and unsatisfactory. Owing to the absence of the

requisite forepleasure and the satisfaction of the human craving for love, masturbation really gratifies only one of the partial sex-components and there is no adequate discharge of the libido or accumulated sexual tension. As a result of this the individual suffers from a chronic toxemia which demands a frequent repetition of the masturbatory activities. The secrecy, the feeling of humiliation, and guiltiness with which these acts are carried out seriously impair the onanist's psyche and his character. His health suffers because of the excessive drain on his nervous energies. But the greatest danger of prolonged masturbation lies in the great probability of the fixation of the fantasies, conscious or unconscious, usually of an incestuous nature, which accompany the auto-erotic acts. In this way there may result a fixation of the infantile sexual aims or a persistence of psychic infantilism which constitute the chief predisposing factors for the subsequent development of a grave neurosis.

The habitual masturbator is always conscious of wrong-doing, fears detection, is aware of the injurious after-effects (depression, headache, lassitude, loss of appetite, etc.) of his "sinful" acts, and apprehends permanent injury to his nervous system. He becomes seclusive, reserved, shy, timid, suspicious, distrustful, — in other words, asocial. Bad cases resemble mild cases of paranoia. But it is also true that if the individual can react sufficiently, he may develop traits of a very admirable character, and be distinguished for veracity, frankness, sincerity, honesty, modesty, ambition, idealism, moderation, etc.

POLLUTIONS.—Nocturnal seminal emissions are such frequent occurrences in persons living in sexual abstinence for any considerable period, and in those whose libido is not properly gratified, that many regard them as nature's method of relieving the tension in the genital glands, preventing auto-intoxication and diverting the mind from the sexual. If this were entirely true, nocturnal pollutions might be regarded as a sort of safety valve for the individual's sexuality. But, as a matter of fact, pollutions are no more a desirable or normal physiological vent for sexual substance than nocturnal enuresis is a normal relief for distention of the bladder. And, in truth, a pollution is not a manifestation of chastity or sexual purity, for it is invariably only the orgasm of a sexual experience in a dream (even though the dream be only latently sexual). Pollutions are of great pathogenic significance in the production of functional neuroses because of the organic after-effects (headache, depression, fatigue,

etc.), the humiliation at the sexual nature of the dreams, the shame of leaving traces on the bedding and underwear, the turning of the mind to sexual themes, the fear of the loss of one's "manhood," and, if frequently repeated, the exhaustion of the nervous energies. Pollutions do not gratify the individual, either male or female, and involve him in psychic conflicts akin to those with which the masturbator has to contend. But if the pollutions are not too frequently repeated and the victims' minds are relieved from worry concerning them, they are robbed of their terrors and prove quite harmless.

ENURESIS NOCTURNA.—From what we have learned from patients suffering from nervousness and also from healthy persons who have subjected themselves to a psychanalysis, we can confidently assert that in every instance where no organic disease of the urinary apparatus exists, bed-wetting, beyond the age of three years, in males as in females, is the physiologic and psychologic equivalent of a pollution. The enuresis represents the orgasm of a sexual dream and occurs chiefly, if not exclusively, in the sexually abstinent. The individual failing to obtain adequate sexual gratification from his environment, finds a substitute by unconscious regression to a form of infantile auto-eroticism. As may readily be inferred, its frequent repetition, especially in childhood and adolescence, and the dreams accompanying it may easily involve the sufferer in conflicts predisposing him to and involving him in psychoneurosis.

Diurnal enuresis and frequent urination, in the absence of organic lesions, have the same auto-erotic significance as nocturnal enuresis. The attempt to cure a so-called "weak bladder" by advising the sufferer to pass his urine in dribblets, as advocated by many, will invariably convert the patient into a masturbator and not infrequently into a urethral erotist.

SPERMATORRHEA.—The diurnal emission of semen upon the slightest provocation, e. g., riding in a train, looking at representations of the nude, reading suggestive literature, handling garments or articles belonging to a person of the opposite sex (or the same sex in homosexuals), passing through an art gallery, sitting at stool, urinating, riding horseback, speaking to, seeing or kissing a person of the opposite sex, etc., are not at all uncommon manifestations of the sexual hyperesthesia resulting from the attempt to be sexually abstinent, to comply with the approved morality of society as at present organized. The frequent recurrence of such involuntary emissions cause the victims a great

deal of worry concerning their health and future sexual vigor besides worrying them about their chastity. The depression resulting from nocturnal and diurnal pollutions can be appreciated only by a psychanalyst or sexologist.

SATYRIASIS AND NYMPHOMANIA.—Prolonged abstinence in a person endowed by nature with a high degree of sexuality not rarely results in a condition resembling a true satyriac mania. Every act and thought is colored by erotic fantasies. The patient is so hypersensitive sexually that every slightest thing or occurrence that stands in direct or indirect (symbolic) relationship to the sexual gives rise to erections with or without emissions, or to pleasurable sensations in the genital organs. Speaking to a person of the opposite sex (or of the same sex in homosexuals) excites the individual to such an extent that his heart palpitates, he trembles, blushes, gets dizzy, is confused, feels hot and cold in turns, and so forth. In the analysis of these cases, the masochistic and perverse instincts will be found to play very prominent rôles.

DAY-DREAMING.—The indulgence in day-dreams is a prominent characteristic of those who do not obtain sexual gratification in the world of reality. The fantasies, which may be unconscious, represent the abstainer's refuge from his discontent into the world of dreams where he may fulfill his secret wishes to his heart's content, without molestation or fear. These wishes are invariably of an erotic or ambitious kind, and even behind the latter the erotic can easily be recognized. In all such day-fantasies the sadistic, masochistic, incestuous and perverse sex-components can easily be discovered. In reality, every day-dream is a kind of psychic masturbation and brings the individual nearer to a psychoneurosis.

HOMOSEXUALITY.—As a result of the natural bisexual constitution of man, we are all homosexual to a certain extent, though in the course of the individual's evolution to maturity, the homosexual component is repressed and sublimated. But if after puberty, the danger period for the normal evolution of the sexual instinct in our adolescent boys and girls, the heterosexual love instinct is not or cannot be gratified and must be suppressed, the main stream of the libido is blocked and dammed back into the homosexual tributary. Passionate friendships between persons of the same sex are really manifestations of homosexuality. As a compromise between the homo- and hetero-sexual impulses within the psyche, the abstainer resorts to masturbation, and inasmuch as

this is really a return to a form of infantile eroticism, the earliest form of sexual gratification, there is great danger of the re-awakening and revivification of the repressed incest complex. How readily and frequently and naturally homo-sexuality is practiced where normal coitus is interfered with for any reason (inaccessibility of the hetero-sexual love object, lack of love between husband and wife, the dangers of hetero-sexual intercourse, etc.) is manifest from what we know concerning the doings among soldiers in barracks, sailors on board ship on long cruises, prisoners in jail, boys and girls in boarding schools, etc. The sexual aim in these cases is mutual masturbation, intercourse per anum, or a mere effusion of love. Under favorable conditions most of these fortunately return to normal hetero-sexuality. But if for any reason this reawakened homo-sexuality lasts for a considerable length of time, there is great danger of the psychic fixation of the inversion and subsequent hetero-sexual impotence as well as a predisposition to a psychoneurosis, alcoholism, criminality and paranoia.

PERVERSIONS.—Psychanalytic investigations have proved that all human beings are by nature polymorph-perverse, i. e., they have within them the capacity and the inclination to obtain sexual gratification by perverse practices, e. g., sadism, masochism, exhibitionism, voyeurism, pederasty, fellatorism, etc. It is true that in the course of evolution from the pansexualism of infancy to the so-called normal hetero-sexuality of adults these perverse elements or components of the sex-instinct are repressed; but this repression is not complete, for rudiments or traces of these perversions are constituents of the normal sexual aim, i. e., are manifested during and preceding coitus, e. g., kissing, looking, hugging, touching, talking, stroking, biting, pinching, etc. In general these actions are not regarded as sexual acts. Now, if a person (be he single or married) endowed with a strong sexual instinct, or (and) one whose sexuality did not undergo a normal evolution because of infantile and childhood psychosexual traumata, cannot gratify the cravings of his sexual instinct after reaching maturity, the further normal development of his sexuality is interfered with, the primacy of the genital zone is prevented from being established, the libido is withdrawn from the outer world (i. e., is introverted) and driven back into any one of the subsidiary branches of the libidinous stream. In this way any one of the sexual instincts or partial impulses may assume dominance. The repressed energy then finds expression either as a perversion

or in the symptoms of a psychoneurosis. The frequency of perverse practices among abstainers is notorious, but it is not so generally known that in a large number of cases a boasted abstinence is only a mask to conceal a perversion. The dangers of a fixation of a perversion ought to be obvious.

BESTIALITY, ETC.— Without going into details, we may say that the not infrequent resort of human beings to sexual relations with animals is no more a sign of degeneracy or insanity than perverse or homosexual practices, and that the cause of this degrading vice is to be found in infantile sexual traumata and the difficulties that our modern marriage system interposes between the individual and the gratification of the normal instinct. So, too, if the normal sexual object is inaccessible or the realization of the normal sexual aim is for any reason deferred too long, *fetichism* — the substitution for the normal sexual object (a person of the opposite sex) of some other object (a part of the body or an article of clothing, etc.) related to it but totally unsuited for normal coitus — may result and become permanently fixed in the individual's psyche. *Assaults on children*, as is well known, are frequently perpetrated by teachers and domestics, and are due solely to sexual abstinence. *Incestuous practices* between parents and children are almost invariably due to marital unhappiness or to psychic or other hindrances to the adult's gratification of his or her sexual aim.

CRIMINALITY.— As we have seen, owing to the numerous and often insurmountable obstacles to the gratification of the overpowering sexual impulses in adolescents and adults, especially in the former, the individual is put to the extremely difficult task of sublimating his wishes and instincts or of suppressing and repressing them. In the unconscious, the repressed incest complex, inversion and perversion complexes, become charged, as it were, with the newly repressed energies. In consequence of this, the individual feels himself dimly impelled to gratify perverse longings, to do something that society and morality condemn as being criminal, i. e., against the best interests of the species. This impulsion to "do wrong" or "go wrong" cannot remain repressed forever and expresses itself either in some criminal act or in the symptoms of a psychoneurosis. That environmental conditions and education, etc., also have their share of responsibility in the formation of a "criminal" is not denied. But from our point of view, criminality is very frequently the expression of a neurosis, of an impulsive obsession to wrong-doing. As Wulf-

fen puts it: "criminality is repressed sexuality and an equivalent thereof." This is best illustrated in pyromaniacs and kleptomaniacs. It has for some time been known that *kleptomania* (shop-lifting) occurs chiefly in strongly libidinous women whose sexual hunger is not satisfied and who haven't the courage or opportunity for sexual gratification. In all cases the theft is the symbolic performance of the coveted forbidden act; they have substituted one wrong, the lesser, for another,—in other words, the affect was transferred from the sexual to the criminal. It is interesting in this connection to note that the objects stolen stand in symbolic relationship to the sexual, e. g., purses and bags, parasols, umbrellas, silk handkerchiefs, etc., and are not stolen for their intrinsic value. *Pyromania* occurs chiefly in adolescent males, and occasionally the offender admits to having had an orgasm at the sight of the mounting flames and excitement. The symbolic significance of fire (=passion), in the minds of most human beings furnishes the explanation for the obsessive impulse in the abstinent. What share the toxemia of sexual abstinence and the various partial impulses play in the awakening of the latent tendency to criminality inherent in all humanity cannot be discussed here.

ALCOHOLISM.—While the psychology of chronic alcoholism (or dipsomania) is not yet fully understood, psychanalytic researches warrant the conclusion that notwithstanding the victim's placing of the responsibility for the habit on social usages, family squabbles, business troubles, etc., the true causes lie in the unconscious. In other words, the alcoholic habit, like criminality, is a neurosis resulting from the partial failure of the repression and sublimation of certain asocial trends or desires. Chief among these is the homo-sexual component, as is evident from the alcoholic's dreams and delirious fantasies, from the habit of drinkers of the same sex to congregate, from the vulgarity or smutty jokes indulged in at such meetings, from the passionate protestations of love and friendship by drinkers to each other, from the tendency to homosexual practices among them, from their not infrequent delusions of persecution, and, by the mechanism of projection, from their characteristic jealousy of their marital partner. In most of these cases the individual's repressed homopsychic component was reawakened and recharged with energy as a result of the impossibility of gratifying the libido by normal hetero-sexual object-love. As other important factors in the yielding to the craving for spirituous liquors, we may mention the unconscious de-

sire to gratify the sadistic and masochistic instincts, the desire to relieve the psychic tension by temporarily blotting out the knowledge of his affairs, and, finally, the gratification of the auto-erotic impulse. The significance of auto-erotism in the psychology of alcoholism was very interestingly pointed out by Juliusburger. Akin to the satisfaction derived by the alcoholic from the erogenous function of the mouth zone is the pleasure of the inveterate smoker, chewer and candy-eater.

IMPOTENCE.—The most frequent and most dangerous sequel of prolonged continence is some form of partial or complete sexual impotence. The prolonged suppression of the most powerful "animal" instinct necessarily results in a partial atrophy of the genital glands by reason of their non-use and the absence of that summation of sexual stimuli which is essential to sexual vigor. Long continued voluntary abstinence develops in the individual an asceticism bordering on masochism and an ever increasing aversion for the female and everything suggestive of sexuality or "bestiality," as he now terms it, and thus there is brought about a gradual and progressive weakening of the libido which may go on to the point of total extinction or psychic castration. And thus our so-called morality and a religion not adapted to the natural constitution of man result in a quenching of the sexual desire, in other words, in a fixation of abstinence. Such persons have lost the capacity for love. Even those who have not gone as far as this, worry so much about the manifest diminution of sexual power and the pollutions and spermatorrhea complicating their abstinence, that there is a further impairment of the libido and sexual vigor. The fear of impotence resulting from abstinence, pollutions, masturbations, etc., is not infrequently the cause of partial impotence and other symptoms of a neurosis. In many the longing for love and the capacity for its enjoyment are almost wholly destroyed by the fear of the consequences of heterosexual coitus, e. g., venereal disease, progeny, etc. But the greatest peril of sexual abstinence is the certainty of the abstainer resorting to masturbation with conscious or unconscious incestuous fantasies. This form of auto-eroticism is so convenient, so pleasurable, and so free from certain dangers characteristic of a normal *vita sexualis* that the habit becomes so fixed in the psyche that the masturbator loses his ability to transfer his love upon a person of the opposite sex and finds normal coitus only a poor and unsatisfactory substitute for masturbation. The premature emission (*ejaculatio precox*) which is so characteristic of the former masturbator ex-

presses his discontent with his partner, his disappointment in the so-called normal heterosexual love as compared with the delights of auto-erotism. Thus the chastity of adolescents advocated by masochistic and impotent propagandists is the worst possible preparation for marriage, and if a disciple of their teachings marries, the union is bound to be an unsatisfactory and unhappy one. Sooner or later attempts at coitus are given up altogether and therewith the prop of marriage is gone. The descensus Averni need not be pursued further.

FRIGIDITY.—Much of what we have said in the former paragraph about the mechanism and psychology of impotence in the male applies literally also to frigidity in the female (dyspareunia). But in women the results of the concealment from them and suppression in them of everything pertaining to the sexual and the prolonged abstinence imposed upon them are much more damaging and lasting than in the male. Our hypocritical morality does not wink at illicit and purchased pre-marital coitus in the case of women. A girl is theoretically brought up so as not even to know the existence of the sexual impulse. The forces of disgust, shame and morality are so over-developed in them that everything pertaining to the sexual is regarded by them as animal, bestial, vile, disgusting. Thus it frequently happens that a normal, healthy, affectionate girl past the age of puberty finds herself involved in a serious conflict between her awakened and imperious libido, on the one hand, and the various inhibiting forces on the other. She wages a conflict that is too much for her as long as she can and then — failure. If she does not fall — and when a woman falls she falls on her back — she resorts to masturbation, develops a neurosis or a psychosis, or commits suicide. As a result of the prolonged auto-erotic gratification with conscious or unconscious incestuous fantasies — a manifestation of the regression of the libido — there ensues an inability to transfer her love upon a strange male and she is partially or wholly frigid. She has so long been accustomed to obtaining gratification from the titillation of the clitoris or labia minora (which play almost no part in coitus) that the titillation of the vaginal mucosa by the penis is ineffective to bring about the discharge of the libido. And so it often happens that a woman has to masturbate immediately after coitus to relieve her excited tension. In consequence, many of these women worry about their inability to gratify the husband, about being sterile, about not loving their husband, about their disappointment in married life, about their

wickedness and sinfulness, etc. Without sexual gratification for both husband and wife, domestic happiness and harmony and indulgence in each other's shortcomings are impossible. Marital happiness is frustrated by the long preparation for it. And thus the woman's fixation in abstinence or in auto-erotism is of the greatest consequence to the individual as to society. In some women the idea of sexual pleasure is so intimately associated with the idea of a forbidden act that they cannot obtain gratification from approved and proper marital coitus,—to enjoy the act they must do something forbidden. Thus our false education of girls predisposes to adultery. In another set of cases the fear of pregnancy and of venereal diseases bring about a temporary psychic impotence. In others the husband comes so short of the ideal, usually the father or brother, to whom the woman's love is unconsciously anchored, that she cannot identify him with the object of her unconscious incest fantasy and consequently cannot transfer her love upon him and is frigid. Psychic perversion and inversion, i. e., fixation in some stage of psychic infantilism, also unfit a woman for normal heterosexual love. Partial or total impotence in the husband is a very frequent cause for a woman's frigidity, but much more frequently the wife of such a man finds herself in a terrible conflict between propriety and unsatisfied longings; the outcome is either infidelity or neurosis.

TRUE NEURASTHENIA.—Inasmuch as I have dwelt at length upon True Neurasthenia, from the Freudian point of view, elsewhere (*Critic and Guide*, July 1912), I shall only say here that this disease follows invariably in the wake of excessive masturbation and too frequent pollutions. The relationship of sexual abstinence to masturbation and pollutions is evident from what has preceded. The classical symptoms of this neurosis are pressure on top of the head, sleeplessness, spinal irritation, diminished power of attention, diminished capacity for work, impairment of the memory, increased susceptibility to fatigue, emotional irritability, dyspepsia, flatulence, constipation, paresthesias, depression and diminished sexual potency. The pathogenesis of the disease depends upon four factors: a chronic toxemia from the incomplete elimination and metabolism of certain hormones (thyroid, prostatic, testicular, ovarian, etc.); the psychic conflict between sexual desire, on the one hand, and the feelings of guilt, shame and remorse which accompany the masturbatory activities, on the other; the excessive output of psychic energy demanded by masturbation as compared with coitus, and, fourthly, the inade-

quate relief of sexual tension furnished by substitutes for normal coitus. True Neurasthenia is frequently associated with Apprehension Neurosis and constitutes an excellent soil for the development of a Hysteria.

APPREHENSION NEUROSIS.—This condition, too, I have described elsewhere (*Critic and Guide*, Dec. 1911; *American Medicine*, Dec. 1911) and shall therefore not go into details at this time. It is one of the fundamental doctrines of the Freudian school that without some disturbance in the *vita sexualis* there can be no neurosis. Every such disturbance, however, implies the insufficient and inadequate elimination of the accumulated libido, no matter how this is brought about,—in other words, non-gratification of the sexual instinct (sexual abstinence) is at the bottom of every neurosis. In apprehension neurosis the physical causes of inadequate gratification predominate, notably the abrupt introduction of innocent girls and newly married young women to gross sexual experiences, coitus interruptus, coitus reservatus, coitus condomatus, ejaculatio precox, the ardent futile embraces of engaged couples, widowhood, a disproportion between desire and potency (in the climacterium of women and senium of men), and voluntary sexual abstinence (especially after a long career of masturbation). Mental factors also play a part in these cases, but we reserve their consideration for the section of the Psycho-neurosis where they play the leading rôle. In consequence of these various conditions the psycho-physiological sexual excitation is not eliminated either somatically or psychically but is stowed up or accumulated; being diverted from the normal aim the sexual excitations manifest themselves psychically as morbid apprehensions and physically as somatic symptoms. The morbid apprehension which is the main feature of the disease is a derivative of the repressed sexuality as well as a reaction against it. Apprehension neurosis may thus be said to be the result of and a substitute for unsatisfied love. The part played in the pathogenesis of the disease by the disturbance in the chemistry of the libidogenous substance and hormones is still a matter for future investigation. So, too, the exact rôle of psychic conflicts, introversion of the libido, and reanimation of old infantile conflicts, have not been definitely established. The symptoms are so numerous and occur in such various combinations, continuously or in attacks, and involve so many different parts of the body, that it is impracticable even to enumerate them in this place. Among the circulatory and respiratory disturbances we have tachycardia,

brachycardia, phrenocardia, dyspnoea, sobbing, thoracic oppression, and asthmatic attacks; in the vasomotor sphere we have sudden congestions, redness or pallor, chills, goose skin, etc.; in the secretory and excretory spheres we have dryness of the mouth, diminution of the gastric juices, outbreaks of perspiration, polyuria, pollakiuria, diarrhea, polydipsia, etc.; in the sphere of the involuntary muscles, globus, strangury, pollutions, constipation, colicky pains etc.; in the gastric sphere, loss of appetite, nausea, vomiting, voracious hunger, pyrosis, etc.; in the motor sphere, great restlessness, purposeless moving about, trembling, twitchings, etc.; in the sphere of the sensory nerves, paresthesias of all sorts, neuralgic pains, excessive sensitiveness to light, hyperacousis, etc. Among many other symptoms we shall mention only a marked general irritability, distressing insomnia, moodiness, crankiness, worrisomeness, abnormal apprehensiveness, locomotor vertigo, localized edemas, dermatographia, urticaria, occupation neuroses, nightmares, distressing dreams, dizziness, fainting spells, certain phobias, a diminution of sexual desire, etc., etc.

THE PSYCHONEUROSES.— Under this term we include Conversion Hysteria, Apprehension Hysteria (Phobias), Obsessive or Impulsive Ideas or Acts, certain forms of Epilepsy, etc. We may state it as a result of psychanalytic investigations that in the evolution of every psychoneurosis there are three stages: (1) That of infantile fixation or disturbance of the libido; (2) That of repression and (3) That of symptom formation. As a result of certain experiences in the infancy of persons of a peculiar psychosexual constitution there occurs an interference with the normal evolution of the libido, or, in other words, a fixation of some particular phase of the individual's sexuality. During the lives of all of us there occur all sorts of experiences and wishes of a sexual nature the recollection of which — for reasons of shame, disgust, conscience, etc.— is disagreeable to us, and which we strive to forget (to repress). As a result of the dynamic nature of these repressed processes there results a conflict between these two antagonistic forces; the censured wish that is seeking to realize itself consciously and the forces that strive to keep all knowledge of these wishes out of consciousness. Subsequently, as a result of the various physical causes of inadequate sexual gratification that we have enumerated in the preceding section and the accompanying psychic conflicts, the libido is withdrawn from the disappointing world of reality and introverted, and the repressed infantile desires are recharged with energy.

The psychic factors, e. g., repressed infantile sexual components (fixation of the libido on one or other parent, masturbation, etc.), a homosexual tendency, a perverse tendency, etc., play the most important rôle in the individual's inability to gratify his libido. For physical and (or) psychic reasons the individual cannot consume the accumulated libido and morbid apprehension necessarily results. The attempt at repression does not succeed and there follows a compromise between the repressing force and the repressed desire. This compromise constitutes the symptoms of the neurosis. We may say, then, that the symptoms of a psychoneurosis are the disguised fulfillment of unconscious desires; in other words, the symptoms are the equivalents of and substitutes for the patient's sexual activities. In all these cases the free floating fear which represents the unconsumed libido attaches itself to any one or more of the pathogenic complexes that exist in abundance in all of us and so give rise to all sorts of phobias. The rôle played by the erogenous zones and the mechanism of the production of the great variety of puzzling symptoms cannot be entered upon here. Nor can we now take up the discussion of the influence of psychic conflicts and an unsatisfactory sexual life upon the chemistry of the internal secretions and the relationship of this to the process of symptom formation. The influence of heredity is also not to be overlooked in this connection, any more than the banal factors (shock, worry, illness, etc.) to which most writers — erroneously — attach prime importance.

THE PSYCHOSES.— Most observers are agreed that the development of certain psychoses is favored by sexual abstinence by virtue of the depression resulting from suppression of the libido and the exhaustion of mental energies in the effort to overcome the sexual cravings, etc. That there is a great deal of truth in this belief is evident from the frequency with which dementia precox (paraphrenia) and other psychoses break out in the period of adolescence which, as we know, is a particularly dangerous period for all individuals who by constitution and heredity are predisposed to a neurosis. Of the mechanism of the evolution of the psychoses, with the exception of paranoia, we know as yet very little. Freud and Ferenczi have shown that very often, perhaps always, paranoia develops as a defensive reaction against the irruption of the repressed homosexuality in individuals in whom certain injurious banal factors acting upon a fixed infantile "narcissus" have undermined or destroyed the sublimation of the homosexual impulse.

To anyone who has thought at all about the sexual life of the cultured races it must be evident that our treatment of the subject is anything but complete. We have said and suggested very little about the deleterious influence of sexual irregularities on the character of the individual, the injury to society resulting from the diminished working capacity of persons struggling with their sexual desires, the great economic loss resulting from the steady increase of neurotics (which keeps pace — step for step — with the heightening of sexual restraints), the greatly diminished joy of life and general discontent and apprehensiveness, the injurious influence of parental disharmony and neuroses on the development of the children, and the prevalence of prostitution and venereal diseases. We are paying too high a price for our theoretical morals,—morals for which we are not fitted by constitution. And it is this conflict between our natures and our hypocritical morality that makes of us — especially Americans — a nervous, unhappy, pessimistic, money-grubbing, and loveless people.

How is this melancholy state of affairs to be remedied? Because of the medical and sociological significance of the many difficult problems touched upon in the preceding pages we shall outline, though briefly, such measures as seem likely to remedy and prevent the conditions enumerated as well as to assist the race in its cultural progress. As to the treatment of the various organic and functional diseases, the actual neuroses and the psychoneuroses, by general medical measures and by some form of psychotherapy, preferably psychanalysis, we shall say nothing at this time. Prevention is better than cure — and cheaper and more certain.

1. INFANCY AND CHILDHOOD.—The psychosexual traumata, real and imagined, that occur during the first six years of life determine the occurrence of a psychoneurosis later in life. Anything that occurs later in life acts only as exciting cause and supplies the energy that reanimates and activates the repressed infantile complexes and desires. If, then, the increase of the neuroses is to be arrested, all our attention must be directed to the period of infancy. Parents and others entrusted with the rearing of infants must be instructed along the following lines: not to stimulate and excite the children sexually by rocking them, kissing them often, kissing their genital or gluteal regions; irritating the genital and anal zones when cleaning, bathing or dressing them; pacifiers, nipples and milk bottles should not be

left in their mouths for a long time; they should not be permitted to sleep with their parents or where they can overhear sexual embraces; everything suggestive of the coarse sexual should be carefully kept from their eyes and ears; they should not be left lying in soiled or wet diapers for any length of time; the functions of the bladder and rectum should be looked after simply and in a business-like way, without any ceremonial or excessive fussing; rivalries and jealousies between children should be guarded against in every way possible; the parents must refrain from quarreling, so as not to elicit the sympathies of their children on behalf of the one or the other parent and so teach them too early to love and hate; the child's sexuality must not be prematurely awakened by expending too much love upon it; undue severity with a child is as dangerous as excessive fondling and pampering; young children should not be permitted to see their parents naked or in the performance of their excretory functions, etc.; but in all these things the parents must avoid giving the child the impression that they are concealing anything from it or that there is something to conceal. That the children must be carefully guarded against being sexually abused or enlightened by companions, domestics and tutors, goes without saying. Exciting tales of adventure, cruelty, cunning and ghosts, must be strictly tabooed. Infantile masturbation in moderation should be wholly ignored, as it is harmless and universal; if practiced to excess it shows that the child is already suffering from a neurosis and in need of skillful medical attention. In trying to break a child of the masturbatory habit it is of the utmost importance not to threaten or frighten it. The games of little boys and girls should be supervised by their elders. Corporal punishment, especially spanking the gluteal region, in sport or in earnest, should be refrained from. Above all it should be borne in mind that young children are very suggestible; humiliating comparisons with other children should be shunned like wildfire; favoritism should not be permitted to occur and the weakness of children should not be brought home to them. Other precautionary measures along these lines will readily suggest themselves to intelligent parents and learned physicians.

2. SEXUAL EDUCATION.—Without going into details I shall only say that a child's curiosity as to sexual matters, the distinction of the sexes, the source of children, etc., is to be satisfied exactly in the same manner and spirit as his curiosity re-

garding anything else that vexes his infant mind. This must be done privately, by either parent, simply, tactfully, truthfully, beautifully — and wisely, without fuss or ceremony, and in accordance with the child's understanding. The parent of the future must be educated to this and how to do it. The classroom is no place for such instruction.

3. **SCHOOLDAYS.**— During the schooldays the child must be guarded against the reawakening of the repressed sexuality by perverse playfellows. This applies particularly to the years preceding puberty, the most dangerous period for the developing boy or girl. Erotic "literature" of every description, decent and indecent, especially the latter, is devoured with avidity at this time and works incalculable damage. The sexual education of the child is to keep pace with his or her development. Sports and pastimes that are capable of arousing sexual feelings and desires, e. g., wrestling, swinging, carousal riding, certain dances, etc., should be discouraged. Nothing is so likely to plunge a maturing boy or girl into some form of masturbation as sitting over long and difficult lessons after school hours; the tasks assigned to children for homework should be light and should require only very little time. In the class-room children should be given plenty of time in which to perform the work assigned them; hurrying a child or standing over him excites him so that he is very apt to masturbate. For the same reason the strain of preparing for and passing examinations should be abolished: every competent teacher knows what pupils are fitted for advancement.

4. **ADOLESCENCE.**— Much of what has preceded applies literally to the period following puberty. With the occurrence of sexual maturity sexual desire is awakened and, in healthy individuals, cannot be repressed without danger. Nature takes no cognizance of artificial economic or sociologic barriers to the gratification of the libido. The sexual instinct may be maltreated and fretted but it cannot be played upon. A large portion of the libido may be sublimated into work, athletics, literature, art, ethics, religion, etc., but it is impossible wholly to divert it from its natural ends (pleasure and procreation). Modern civilized life is so full of sexual excitants that no normal human being can avoid coming under their influence, and even if he could, nature would not permit it. To frighten adolescent boys and girls into abstinence by exaggerated portrayals of the consequences of gonorrhoea, chancroids and syphilis, is as immoral

as it is futile, and extremely apt to beget a large number of venerophobes. To teach girls that the sexual is vile, degrading, or bestial, is to make them incapable of love and to become responsible for their marital frigidity, misery and infidelity. Masturbation should be discouraged because of the great temptation to its frequent repetition; but if it is practiced in moderation, when the sexual furor cannot be appeased in any other way, and without the simultaneous indulgence in fantasies, it is harmless. Fortunately we physicians will rarely be called upon to teach any one how to masturbate. Nature has attended to that for us. But in case of need, we should not hesitate to perform our plain duty. In our present sociological régime masturbation for boys and girls of a certain age, endowed with a certain amount of sexuality, is an absolute necessity and may save them from a grave neurosis or a career of crime.

5. PROSTITUTION.—That the sexual cannot be wholly suppressed is tacitly admitted by modern morality's sanction of the double standard for men. But if prostitution is prohibited for women, it should also be prohibited for men. That prostitution is a poor, inadequate, and dangerous substitute for a normal sexual life is clear from what has preceded. If, however, it is to be permitted to continue, it should be licensed, segregated, properly supervised, and there should be no calumny attaching to one resorting to it.

6. EARLY AND TERMINABLE MARRIAGE.—A fairer, more equitable, more salutary, and more proper way out of the dilemma, however, is to so modify our marriage system as to make it possible wholly to do away with prostitution, prolonged abstinence, etc., and to enable adolescent and adult men and women to lead a normal sexual life. As soon after or about the age of twenty—the “romantic age”—as men and women find a *vita sexualis* necessary for their health they should be encouraged to marry without regard to their financial status. If the newly married couple cannot or do not wish to go into housekeeping, they should continue to abide with their parents or with the parents of either of the contracting parties until they decide to live together by themselves. Unhappily married couples should be permitted to sever their relationship more easily than at present, somewhat along the lines outlined by Ellen Key in her book, “Love and Marriage.” Incurable *ejaculatio precox*, impotence, venereal disease, frigidity, incompatibility, adultery, insanity, desertion, non-support, inversion, perversion, etc.,

should be sufficient grounds for divorce. Love, and love alone, should be the basis for marriage,—if the psychic health of the race is to be saved.

PREVENTION OF CONCEPTION.—The greatest obstacle to early marriage is, without exception, the great probability of parenthood and the expense, responsibility and sacrifice, associated with the rearing of children. So, too, in the married the desire to avoid a numerous progeny is the cause of refraining from coitus or resorting to various tricks to frustrate the procreative instinct. How these procedures favor the development of the psychoneuroses, prostitution, the gradual estrangement between husband and wife, adultery, etc., is obvious to one who has followed our thesis. To prevent all this, our laws must be so modified as to permit physicians to instruct men and women in the art of preventing conception. No physician who has seen the benefits of such instruction in restoring marital happiness and in doing away with distressing symptoms can have any doubts as to the wisdom of the policy herein advocated.

8. LICENSED ABORTION.—Until the medical profession has perfected a method of preventing conception in a non-castrated female it should not be illegal for a duly licensed physician to induce a miscarriage at any time during the first three or four months of gestation.

9. PSYCHANALYSIS.—Finally, as one of the most valuable prophylactics against the occurrence of the actual and psychoneuroses, of psychic impotence, of alcoholism, of criminality, of masturbation, etc., the psychanalysis of every maturing boy or girl that shows the slightest signs of "nervousness" is to be highly recommended. For this purpose a board of trained psychanalysts ought to be connected with every public school, orphan asylum and reformatory.

Along these lines must our efforts be directed if we are to insure the physical, mental and moral health of the race.

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REVIEW OF CURRENT UROLOGIC LITERATURE

ANNALES DES MALADIES VÉNÉRIENNES

Vol. VIII, No. 3, March 1913.

1. Contribution to the Treatment of Syphilis by Hectine. By V. Dudumi. P. 161.
2. A Case of Acute Anterior Poliomyelitis appearing in the Course of the Secondary Stage of Syphilis. By Drs. Touchard and Meaux-Saint-Marc. P. 191.
3. A Case of Spastic Paraplegia, Two Months after an Intravenous Injection of "606." By Robt. A. Bachmann, U. S. N.

1. Treatment of Syphilis with Hectine.

Hectine- or benzo-sulfone-para-amino-phenyl-arsenate of sodium is a whitish substance which crystallizes in the form of long needles. It is readily soluble in water and can be given by intra-muscular injections in doses of 0.2 centigram per day. Approximately 3 to 5 grams are necessary for a cure. The author has used this drug in five cases which he reports in detail (with photographs) and arrives at the following conclusions:

1. Cutaneous syphilides and ulcerated and non-ulcerated mucous syphilides (tertiary) are cured by daily intramuscular injections of 0.2 cg. of hectine, 5 to 25 injections being necessary.

2. Hectine injections alone suffice to cure the above types of lesions without any additional treatment.

3. This treatment will also cure extensive ulcerating syphilides due to late hereditary syphilis.

4. After the lesions are cured by hectine, mercury and iodides should be employed to prevent recurrence.

5. Hectine is indicated not only in cases of intolerance to mercury but in all cases of syphilis, primary, secondary, or congenital, and especially in ulcerations where salvarsan and neo-salvarsan are contra-indicated.

6. Hectine may be considered as a specific for syphilis without replacing mercury, but these two drugs should be used, each according to its indication in any particular case.

7. A total of 3-5 grams of hectine may be given to a patient without any ill effect such as might follow the use of salvarsan or neo-salvarsan.

2. A Case of Acute Anterior Poliomyelitis Occurring During the Secondary Stage of Syphilis.

The authors report the case of a young girl of 19 who, 3 months

after the appearance of a syphilitic chancre, was suddenly taken with malaise and fever and found that she had sustained a flaccid paralysis of the left lower extremity. There was local diminution of temperature, disturbance of sensation, abolition of reflexes, and a considerable amyotrophy. For a time the sphincters were affected.

Lumbar puncture revealed a fluid in which albumen was increased in amount, and in which there was a slight lymphocytosis. The fluid gave a negative Wassermann reaction.

The writers discuss the differential diagnosis and then take up the possible relationship of the syphilis to the onset of the paralysis. They leave the question *sub judice*.

3. Spastic Paraplegia Two Months after an Intravenous Injection of "606."

Bachmann's case was a young man who contracted syphilis in 1910. For about a year he received the usual mixed treatment. This was then suspended, and in Aug. 1911, he received 0.6 gm. of Salvarsan intravenously. Two months later the patient was emaciated, depressed, could hardly stand on account of weakness of the legs. Temperature was 100.4° F, the pulse was 100. No evident lesions of syphilis. Reflexes exaggerated. No control of sphincters. Diagnosis: leptomeningitis.

A month later there was some improvement. The gait was more regular but was of a spastic type; there were severe pains in the muscles of the legs and abdomen. Romberg sign was present; Babinski was negative. There were tremor of the legs and irregular areas of anesthesia on the lower abdomen and back of legs.

Toward the end of December the Wassermann was positive and the patient was put back on mixed treatment. By the end of February the patient had gained considerably in weight and there was improvement in the gait. The mixed treatment was being continued.

At the end of March the gait was much improved but there was still considerable difficulty in going up and down stairs. A Wassermann reaction (done three weeks before) was negative. In April a second injection of 0.6 gm. of Salvarsan was given, followed by a sharp reaction and in May still another injection was made. The diagnosis at this time was syphilitic spinal meningitis. The gait was still uncertain and spastic. The Babinski sign was positive. The mixed treatment was continued between and after the Salvarsan injections.

Improvement continued steadily until in November the Romberg sign was negative, there were no sphincter troubles, reflexes but slightly exaggerated, no zones of anesthesia or hyperesthesia. The Babinski sign however was still present.

REVUE CLINIQUE D'UROLOGIE

March, 1913

1. Therapeutic Fistulization of the Bladder. By E. Loumeau. P. 135.
2. Action of Adamone on Irritative Phenomena of Sexual Nature. By E. R.-W. Frank. P. 163.
3. The Pyelitis. By Dr. Oppenheimer. P. 170.
4. Treatment of Chronic Anterior Urethritis by the Aspiration Method. By W. Bronner. P. 196.
5. Incontinence of Urine following Spontaneous Expulsion of a Vesical Calculus. By A. Babes and V. Capitoli. P. 219.
1. Therapeutic Fistulization of the Bladder.

In this paper Loumeau does not discuss opening the bladder for the purpose of diverting the urinary current ("derivation des urines") as a preliminary measure, but takes up fistulization of the bladder as an end in itself. He has performed this operation twenty-three times: seventeen times for painful cystitis, acute or chronic, of different kinds, five times for vesical or prostatic tumors, once for a urethro-rectal fistula following a prostatectomy and resistant to several autoplasties.

Of the seventeen painful cystitis cases the following are of special interest. *Case 2.* Chronic painful cystitis of 8 years' duration following gonorrhea and aggravated by a strong injection of nitrate of silver. Suprapubic cystostomy done in 1894. Relief of all symptoms by means of the permanent hypogastric fistula which functionated very satisfactorily up to the time of death, 7 years later, due to pulmonary edema. *Case 9.* Rebellious and painful leucoplastic cystitis. Supra-pubic cystostomy and cauterization with thermo-cautery of a vesical plaque. Relief of symptoms after 3 months' functioning of the vesico-hypogastric fistula, which closed spontaneously. *Case 12.* Painful cystitis in a patient with calculous prostatitis. Hypogastric section and drainage. Vesical drainage maintained until death, 7 months later, in order to control bladder pains. *Case 17.* Chronic painful cystitis of unknown origin. Supra-pubic cystostomy after establishing the absence of stone, tumor, and prostatic hypertrophy. No relief of symptoms, and death 6 weeks after operation.

Among bladder and prostate tumors the following examples may be cited: *Case 18.* Diffuse vegetating epithelioma of the bladder with retention and intolerable cystitis. Creation of vesico-vaginal fistula which caused the disappearance of all symptoms but which closed in 3 months. Seven years of relief. Reappearance of symptoms somewhat relieved during two years by boric acid lavages, only to become worse and worse to such a degree as to justify a complete cystectomy which rapidly proved fatal. *Case 21.* Cancer of the prostate with chronic incomplete retention. Impossibility of transvesical prostatectomy. Supra-pubic fistulization of the bladder with utilization of author's urinals (night and day models) with complete local relief despite the gradual progress of cachexia.

The incurable urethro-rectal fistula above-mentioned, followed a transvesical prostatectomy for cancer. Creation of a permanent hypogastric fistula with introduction of permanent catheter through the urethra. Maintenance of above until death of patient 18 months later owing to general carcinomatosis.

In summing up his cases the author points out that a cure was effected in seven of his patients, that there was relief of bladder symptoms in twelve others, whereas there was absolutely no benefit in three. The incision was made 19 times in the hypogastrium alone, three times in the vagina alone, and once in the hypogastrium and vagina, successively.

The writer closes with a plea for the more frequent and more early employment of fistulization as a therapeutic measure.

2. Action of Adamone on Irritative Phenomena of Sexual Nature.

Adamone is the dibrom-dihydrocinnamylic ether of borneol. It is inodorous, tasteless, and contains equal amounts (35%) of bromine and borneol in an easily decomposable form. Its content in bromine assures it a general sedative action while the borneol in it has the usual effect of camphor on the urogenital system. At the same time it has none of the disagreeable after effects of bromides or camphor. The author uses the drug in the form of compressed tablets and gives on an average 3 grams a day. He has treated thirty patients suffering from the most diverse forms of sexual irritability and has obtained very gratifying results. Cases of painful erections, of pollutions, of severe psychic disturbances due to simple or complicated gonorrheas, to violently maltreated stricture, or following cauterization or other topical treatment of hypertrophied verumontana, inflamed lacunae, or diseased prostates, have been greatly benefited by the new treatment. Insomnia and various nocturnal disturbances have been very successfully controlled where ordinary sedatives had failed.

3. The Pyelitides.

Oppenheimer's paper is based on the study of 100 cases of which 76 were personal. The chief form of pyelitis he describes are those due to the common pus cocci, to the gonococcus, to the streptococcus. Clinically the infections may be acute or chronic, ascending or descending (hematogenous), in origin. Special forms are those of intestinal origin, the "pyelitis of defloration," infantile pyelitis, and the pyelitis of pregnancy.

In the typical acute form of the disease the temperature is high and septic in type, but comes down in from 2 to 6 days under treatment. Vesical symptoms are most prominent, but occasionally toxic symptoms are marked: general pains, gastro-intestinal disturbances, etc. At first the urine is diminished in amount, later it may be much increased. The microscopic examination is of course characteristic.

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The pains in the loins are to be attributed to the distention of the kidney pelvis.

In acute cases the diagnosis is simple with the clinical and microscopic findings, but in the chronic forms the disease may not be recognized without a complete cystoscopic examination with catheterization of the ureters.

The prognosis depends on the infectious agent. As regards life the strepto and staphylococcus infections are the most serious, but once recovered from they show little tendency to recur, whereas the colon bacilli are most likely to cause recurrences or chronic irritation.

The author strongly recommends conservative treatment for all acute forms. Rest in bed, forcing of fluids, and the administration of urinary antiseptics are the means at our disposal. If the urine is alkaline it should be rendered acid with hydrochloric acid, if there is no contra-indication. Milk diet is the best for the first 10 days.

As an antiseptic, salol is preferred by the author in coli-bacillus cases, the dose being 5 grams a day. Next to salol, urotropin is the best drug, especially where the urine is alkaline, given in similar doses as the former except in children where 1 to 1.5 grams suffice daily.

Local treatment should never be employed unless there is an indication of serious retention, such as severe pain, or the general condition is grave, or the fever persists in the subacute stage. The method recommended by the author is that described by Albarran, and consists in injecting through a ureteral catheter 8-12 c.c. of a solution of AgNO_3 (1-2%) under weak pressure and letting it return immediately through the catheter.

Where the conservative treatment (as outlined above) fails, continuous drainage may be effected by the introduction of a permanent ureteral catheter. The catheter may be removed for good when there is no rise in temperature following its withdrawal. Two weeks of continuous drainage usually suffice to clear up the condition. This method is especially efficacious in the pyelitis of pregnancy.

4. Treatment of Chronic Anterior Urethritis by the Aspiration Method (Conclusion).

Bronner has studied the tissue changes following the employment of Bier's passive hyperemia by means of suction and finds that there is in general a dilatation of the vessels and a migration of leucocytes to the surface of the tissue. In the mucosa of the urethra the above changes take place and shreds are cast off from the surface, these shreds containing leucocytes and pathogenic microorganisms. By this means a "dekeratinization" of the chronically thickened mucosa takes place.

Occasionally, when too much of a negative pressure is employed with the suction apparatus, small hemorrhages ensue but as the tube is introduced only into the anterior urethra no serious damage need be

feared. Where the mucosa is "keratinized" practically a vacuum may be employed, but where the urethra is still soft treatment should be begun with a negative pressure registering 15 to 20 divisions of the manometer and the strength of suction should be increased 2-3 divisions at each sitting.

Posterior urethritis should not be treated by this method as the resulting cicatrizations may do serious anatomical and functional damage, and besides the tendency to considerable hemorrhage is greatly increased.

5. Urinary Incontinence following Passage of Vesical Calculus.

The authors report the case of a girl of 18 who complained of diffuse abdominal pain, hematuria, and attacks of urinary retention. The pains and the retention were relieved when the patient sat down or lay down. After 2 or 3 weeks of suffering she passed a large stone which caused a temporary hemorrhage and was followed by total incontinence. The bladder was treated with lavages and a plastic operation done on the urethra with good functional result.

The stone weighed 76 grams and was 6.5 x 4.5 x 3 cm. in dimensions. It was stratified in structure, showed no nucleus, and contained oxalates.

MISCELLANEOUS ABSTRACTS

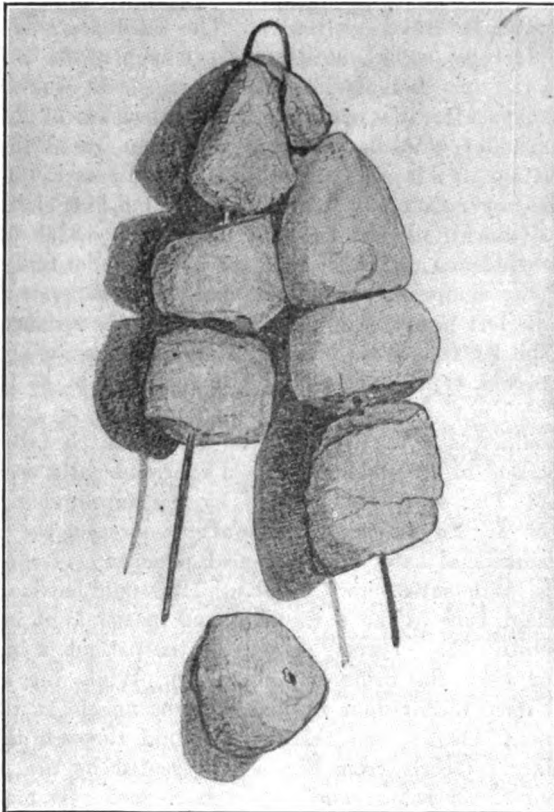
A Contribution to the Casuistry of Luetic Nephritis.

Damask (*Wiener Med. Wchnschr.* No. 39, 1912) reports the case of a man of 34 in whom evidences of a chronic parenchymatous nephritis set in 11 years after the acquisition of specific disease. As the Wassermann reaction gave a positive result both in the blood serum and in the globulin fraction of the urine, mixed treatment was instituted with very good results. The casts disappeared completely from the urine, the albumen and red blood cells almost entirely, and the subjective condition of the patient was markedly improved.

An Extraordinary Case of Vesical Calculi Formed on a Foreign Body.

Dr. G. W. Maly reports the following interesting case (*Zeit. für gyn. Urol.*, Vol. IV, No. 2): The patient was a girl of 22, who during the past year had been complaining of pains in the abdomen and constantly increasing urinary difficulties. On examination the hymen was found intact. Right behind the symphysis in the anterior vaginal wall one could feel a hard nodular resistance. The catheter at once encountered a hard body. The urine was turbid, ammoniacal. Cystoscopically one could plainly see at once a hairpin with seven stones strung out regularly over both prongs. The size of the stones was that of hazelnuts and they had well formed facets. An eighth stone, which had separated from the hairpin, was lying nearby. The fine lumen of the stone, showing that it was also formed on the hairpin, can

still be seen. Suprapubic cystotomy was performed, recovery was uneventful, and after 14 days the patient was discharged well.



The illustration reproduces the stones in their arrangement and their natural size. The surface of the stones is yellowish red, somewhat rough but smooth at the facets. The stones were not fixed on the pin but could be turned and moved. The hairpin was introduced for purposes of masturbation.

Note on Fifty-five Suprapubic Prostatectomies with Four Deaths.

Dr. Andrew Fullerton reports (*Brit. Med. Jour.* No. 2720) fifty-five cases of suprapubic prostatectomy, in which the patients were taken as they came without special selection, with only four deaths or a mortality of 7.2 per cent. The age of the patients ranged from 53 to 80. The first death was from uremia in a man of 75 whose general condition was above the average. The second death took place six weeks after operation from perinephritic abscess in a man of 54.

The author attributes this to an unsuspected collection of phosphates and débris in the bladder which failed to come away with irrigation, and he now makes a practice, when in doubt, to insert the finger down to the base of the bladder and the prostatic pouch to make sure that all foreign matter has been got rid of. The third death is attributed more to the effects of spinal anesthesia, in a man of 68 with a weak heart, than to the operation itself. The fourth death was from septicemia twelve days after the operation, in an alcoholic of 66 who had infected his bladder with the catheter and from whom the prostate and a phosphatic calculus were removed as a last resort. The author emphasizes the importance of rapidity of operation and close attention to the after-treatment. Permanent incontinence, of which he had but two cases, he attributes to insufficient care to retain the integrity of at least part of the compressor urethrae muscle, the anterior portion of which should be left to act as a sphincter in case the sphincter vesicae does not resume its functions; and to attempts at removing prostates of the hard fibrous type, in which it is difficult not to go beyond the proper layer.

If the bladder is septic it should be washed out before operation for some days, and in a few cases drained suprapubically as a preliminary measure. The drainage provided by the suprapubic wound is, however, not ideal. In one or two cases after operation the author has tried, as an additional safeguard, perineal puncture, as suggested by Lynn Thomas, with satisfactory results. He would advise, however, that the drainage tube in the perineal wound be not kept in too long. He washes out the bladder every day while the patient is in the home or hospital, or until the urine is quite clear. While the suprapubic wound is still open this is done by inserting the nozzle of the syringe into the external meatus and forcing the fluid through the urethra into the bladder. Débris from the cavity vacated by the prostate is thus stirred up from below, and thorough cleansing is more certain thus to be obtained.

Epididymitis and epididymo-orchitis have given a good deal of trouble. The torn ends of the ejaculatory ducts are liable to be infected, while the raw surface left after removal of the prostate remains unhealed. Every effort must be made to keep this surface as aseptic as possible in the hope of preventing this complication. It is often accompanied by a milk-white discharge from the meatus. It may be unilateral or bilateral, and is attended with a good deal of pain and constitutional disturbance. During the treatment of this condition the testicles ought to be supported on a broad strip of strapping from thigh to thigh placed as near the fork as possible. Glycerine and bella-donna will relieve the pain, due care being exercised to prevent absorption of the belladonna.

Suprapubic fistula is an occasional complication. If this shows any tendency to persist Fullerton ties in a catheter, if satisfied that all

sloughs have separated and the interior of the bladder is free from foreign matter. There should be no hurry to remove the suprapubic drainage tube. It acts as an exit for phosphatic deposit and tags of mucous membrane, which might otherwise form nuclei for calculi. The author only had one case of permanent fistula. Touching the edges of the fistula with nitric acid or the actual cautery has proved successful in some, while in others he was obliged to curette once, and occasionally twice, under a local or general anaesthetic.

Phosphatic deposit on the suprapubic wound and in the bladder is most annoying, and he is at present trying the application of a few drops of acetic acid to the wound and dropped into the bladder through the drainage tube. He has not sufficient evidence to warrant in recommending this procedure, but it can do no harm, and seems to be a likely remedy. In addition, an attempt may be made, by suitable diet and excess of fluid, to prevent the deposition of salts.

Hydrocele in Infants.

Dr. J. H. Nicoll reports success (*Brit. Med. Jour.*, No. 2721) in the outpatient department treatment of hydrocele in infants by operation. His six cases, in which the age of the children ranged from 2 weeks to 18 months, were cases of hydrocele of the ordinary "acquired" type. The dressing was a small pad of sterile gauze fitted by a strip of adhesive plaster. The children were taken home by their mothers after operation, and brought back in a week for removal of dressing and sutures. A skin incision (1 to 1½ in.) was made just above the groin over the inguinal canal, and the spermatic cord exposed just below the ring. The testicle and hydrocele were pushed up into the wound, and the upper end of the hydrocele sac exposed by a few snips of the scissors. The exposed sac was then emptied by trocar and cannula. The collapsed sac with the testicle was then pulled out of the wound, and the sac dealt with—either by tearing out its internal serous lining, by complete excision, or by bisection and suture of its halves back to back behind the testicle. Replacement of the testicle in the scrotum, and suture of the wound in the groin completed the operation. In the comparatively small hydroceles of infancy no drainage is necessary.

Dilatation of Tight Strictures Causing Retention.

In cases where it is impossible, even with the aid of the endoscope, to pass a filiform through a urethral stricture which is causing retention, Dr. W. S. Schley (*Surg. Gyn. and Obst.*) employs the following method to bring adrenalin and cocaine in direct contact with the stricture, in order to open it without urethrotomy. An endoscope is passed to the site of the stricture, developing its orifice. A blunt-pointed, round-end hypodermic needle of 17 or 18 Brown & Sharp gauge diameter is pressed against or as far into the orifice as extremely gentle pressure will allow, and a few drops of cocaine-adrenalin mixture in-

roduced. In a few minutes it is usually possible to insert the needle very appreciably farther in. After it has entered 4 or 5 mm., a No. 5 F. woven ureteral catheter with taper end is substituted and injections made through this, advancing after each injection. Ten or 15 drops of the solution are usually sufficient.

The following case is illustrative. A man of 50 had had a stricture for over 15 years. He presented himself with complete retention, having been unable to void since forcing out a few drops some hours before. Filiforms failed to pass. The endoscope showed a tight stricture beginning just below the penoscrotal junction. By moderate pressure on the instrument the orifice was developed more clearly as the mucosa was stretched from the center, but it was impossible to more than barely enter a filiform. A long medium fine blunt-end needle entered 2 or 3 mm. and a few drops of equal parts 1-1000 adrenalin and 4 per cent. cocaine solution were injected. After the needle had passed about 5 mm. the ureteral catheter was used, and in a total of fifteen minutes work it had passed to the bladder. The stricture proved to be of 3 cm. length. The following day it was more difficult to insert the catheter, and the author regretted not having left a filiform in place. There was undoubtedly engorgement following the anemia produced and the mechanical insult. On the third day, however, it was possible to pass a No. 8 F. elastic bougie, and a week later a No. 10 F. From that time on the dilatation was simple. Three months later a No. 25 F. sound passed smoothly. After the first dilatation it is well to leave a filiform in the urethra if urethrotomy is not to be done.

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A CONTRIBUTION TO THE STUDY OF ECTOPIA VESICAE

By KARL BRANDL, M. D. Deggendorf, Germany.

THE pathologic picture of ectopia of the bladder is quite characteristic. On examination one finds a split of the anterior abdominal wall in the region of the pubis which is filled by reddish, glossy tumor projecting above the surface of the abdominal wall. However, upon closer examination no actual defect of the abdominal wall is found, there being only a separation of the recti muscles. The extent of the gap varies; it is almost always confined to the mons veneris, but some instances are recorded where it has reached as far up as the xiphoid process. In complete cases there is always a separation of the symphysis pubis varying in width from 2 to 8 centimetres, the gap being filled by connective tissue.

There is also a malformation of the external genital organs in all cases of well developed extrophy of the bladder. In the male the rudimentary penis presents an epispadias. The rudimentary member is to some extent directed upwards while the glans is greatly enlarged. The ejaculatory ducts occasionally open into the bladder, sometimes into the urethra, which is open at its upper portion. The prostate gland is wanting in about 50 per cent. of the cases. Not infrequently the testicles are also in ectopia, in which case the scrotum is divided into two halves by a deep sulcus.

In the female, who is less frequently the subject of extrophy of the bladder, the urethra is generally completely absent, and if the clitoris exists at all it is split in the middle and like the labia is rudimentary. This split may continue in the internal genitalia,

thus giving rise to a uterus bicornis or duplex, with a single or double vagina.

In many cases the digestive tract may present a double cloaca, the rectum opening into the posterior bladder wall.

Of course the malformations referred to relate only to extreme cases of ectopia vesicae. There are minor grades of this congenital defect and we can classify the cases, following Winkel, as follows: (1) A defect of the bladder at its lower portion, the pubis being united; (2) A defect of the bladder at its upper part, the pubis being united (fissura vesicae superior) and this is the rarest type; (3) Typical ectopia of the entire bladder.

Cases.

CASE I. Male, five months old. The parents were said to be healthy and no other cases of the malformation had ever occurred in the family. Gestation had been perfectly normal.

In the region of the symphysis pubis a protrusion the size of an apple is seen. In the median line above it the umbilicus is represented by a spot of cicatricial tissue and upon pressing this a protrusion about the volume of a nut is produced. The tumor itself is covered with a bright red mucosa, which bleeds slightly and at one spot is covered by a diphtheritic coating. The surface presents many furrows, the contours being quite irregular. The ureteral orifices were pin-hole size and both gave exit to urine in drops, at times in a jet. Further examination showed that the symphysis was not united. The lower edge of the mucous surface is drawn in deeply and directly reaches the rudimentary penis. This latter organ is very short and only becomes visible when drawn out. Epispadias is complete, the urethra being only a shallow sulcus. At the proximal end the prominence formed by the colliculus seminalis can be plainly seen and on both sides the orifices of the ejaculatory ducts. A rudimentary glans exists, under which is a prepuce consisting only of a short tip which is directed downwards. The scrotum, containing both testicles, is normal. The child is in other respects well developed.

CASE II. Female, three years of age. Mother states that she was perfectly well during her pregnancy and labor was normal. There was a history of two miscarriages and a breech presentation at a previous labor.

Examination of the child showed that below the spot where the umbilicus normally exists, there was an opening in the ab-

dominal wall of oval shape, large enough to admit the tip of the index finger. One centimetre below there commences a defect in the abdominal walls in the form of a median split which reaches the ununited symphysis. From this split a rounded tumor projects, which at its upper third is covered by cicatricial tissue extending to the abdominal wall. The lower two-thirds of the protrusion are covered with a bright red mucosa, secreting a small amount of mucus. The surface is velvety and divided up by sulci. In the middle of the lower portion two small projections are seen containing the ureteral orifices represented by two oblique slits running upward from which urine comes. The right orifice measures 4 mm., the left 2 mm. The flow of urine is neither constant nor the same from the two ureters. The more forcible jet is present on the right although the urine comes away in drops when the jet ceases. The entire contour of the ectopic bladder blends with surrounding skin of the abdomen, but at the lower point there exists a small pocket with sharp borders. At this point a shallow sulcus begins, extending downward. It is one and a half centimetre in length and is lined with a pale red cutaneous membrane. In the middle of this sulcus there is an opening the size of a large pin-head which represents the introitus vaginae, and by introducing a sound and lifting the surrounding parts a hymen the thickness of paper is revealed. On either side of the sulcus are two small tabs of skin which are directed outward and upward. The upper and larger one, covered with normal epidermis is connected with the lower one whose covering appears more like that lining the sulcus. At the outer side of these rudimentary labia are two marked projections which are easily recognized as the ununited ends of the symphysis.

Upon several occasions an attempt was made to create an anterior bladder wall by making lateral flaps of skin but each time union failed and the procedure was unsuccessful.

ETIOLOGY.

In former times extrophy of the bladder was explained in most unsatisfactory ways and it is only of recent years that a more satisfactory explanation could be given. Two principal theories, quite opposed to each other, were developed. The first of these holds that there is intrauterine rupture of a completely formed bladder, while the second admits ectopia to be a pure anamorphosis.

The first theory was chiefly represented by Duncan, then by

Mueller and Rokitanski, and more recently Schutze and Winkel have adopted it. The first stage in the process is the closing up of the urethra, causing retention of urine. The pubic bones, which at this time are scarcely cartilaginous and still ununited, are kept apart until they become hardened. At the same time the recti muscles are kept apart, so that little by little, by the intravesical pressure of urine, the bladder presses against the abdominal wall and finally ruptures and forms adhesions to the borders of the split.

Before considering the correctness of this theory, I would like to consider the theories included in the second group, which explains the ectopy by pure anamorphosis. Ahlfeld's explanation is that a misplacement of the vitelline sac takes place and for some unknown reason the vitelline sac is forced to the tail of the embryo and, if, for example, in consequence of a sudden filling of the amniotic cavity by fluid, a violent traction, the proctodaeum is forced towards the symphysis, it will push the allantois before it and thus prevent fusion with the parts arising on both sides. Thus the abdominal wall and symphysis remain split, and in consequence of this the organs lying on either side, which after their fusion should form the genitalia, cannot meet.

The allantois forms a large bladder and as the excretory duct cannot develop downward the sac fills and finally ruptures, by which the anterior wall is lost, the posterior alone remaining. So long as the fetus is contained in the membranes and the abdominal contents and amnion are subjected to an almost equal pressure the ectopic bladder is concave, but as soon as birth takes place the bladder walls become projecting on account of back pressure from the intestines. Other anomalies exist. The intestinal canal is involved in almost all cases. In advanced cases of splitting of the abdominal walls there is almost always a malformation of the anus, it may be imperforate or communicates with the bladder by a cloaca.

This theory, although correct in some few instances, is not generally applicable, at least when the splitting is not complete, as for instance when there is no diastasis of the pubic bones. As to the assumption that in almost all cases of *fissura vesicae* the terminal gut is involved in the malformation and that in the more marked types of ectopia a preternatural anus exists, it must be admitted that this is not correct to the extent assumed by Ahlfeld. Thus in the two cases here reported the terminal portion of the

gut and anus were perfectly normal, although they present the highest degree of extrophy.

Another and very ingenious theory is that of Thiersch, namely, a defective succession of the time of fusion of the pelvic bones and division of the cloaca. He assumes that at the time when division of the sinus urogenitalis and rectum takes place, the symphysis is already united, as a small projection of skin, the so-called genital protuberance, is seen. This originates when the two corpora cavernosa, which develop at the same time as the cartilaginous pelvic bones unite, become united and the glans then develops on them. While this goes on, the perineum becomes lengthened and pushes the orifice of the sinus urogenitalis before it towards the lower border of the symphysis and by union with the genital protuberances forms the urethra. If, however, the division of the cloaca and the upward progress of the sinus urogenitalis occurs before union of the symphysis takes place and that of the corpora cavernosa connected therewith in genital protuberance, the corpora cavernosa do not unite at all, or only imperfectly, since the place they were to occupy has been taken by the sinus urogenitalis. Consequently, no urethra can be formed, so having no outlet the bladder fills and finally ruptures.

The fault of this theory is that it assumes a nonunion of the symphysis, and for this reason Thiersch himself has adopted Duncan's ideas.

Roose believes that the cause of the defect is a failure of union between the pubic bones resulting from some injury to the mother during gestation. At all events, such an explanation can only apply to exceptional cases. The rather common occurrence of other defects in the same subject, such as hare-lip, spina bifida, etc., induced Klebs to assume that more extensive amniotic disturbances arose. A similar explanation is given by Perls when he states that a fusion of the chorion with the borders of the lateral plates takes place, preventing the union of the latter.

Rose thinks that every case of fissura vesicae is due to a patent urachus, a theory which is not free from objection, in as much as it cannot explain those instances where there is a normal umbilical cord and no urachus fistula.

Now which of these theories is correct? It seems to me that Duncan's is the best. The fact that the fetus is constantly voiding urine has long been established, and experimentally Wiener has shown that urine secretion is active in the fetus and that the

bladder constantly empties itself. The researches of Englisch relative to congenital hydronephrosis are important on this point, and he points out that of a total of 89 cases of complete hydronephrosis 40 were congenital. Congenital dilatation of the ureters has been described, all of which goes to show that the bladder certainly functionates actively during fetal life.

By Duncan's theory the malformations of the urethra and penis can be explained as follows. To explain the epispadias, the cause of stoppage to the flow of urine must be ascertained. Kauffman found that in the majority of cases it was due to complete absence of the urethra glandis, which forms an invagination of the skin. As a second cause he finds retarded junction of the urethra glandis with the central urethra. The natural consequence of both anomalies is rupture of the urethra from over-distension. There then occurs as a result a loss of substance on the anterior aspect of the penis and with retraction of the cicatrix the upward curve of the organ arises. The shortening of the penis is also in part due to the separation of the pubic bones, by the resulting pressure the two corpora cavernosa situated over the descending rami of the pubis are held apart.

Kauffman attributes only secondary importance to the presence or absence of the symphysis and states that stoppage to the flow of urine takes place both in the urethra and bladder. Now, according to the time of rupture, taking place first in one or the other organ, the result will be a simple epispadias or an ectopia of the bladder with a normal symphysis, or in the other case, if from permanent pressure the symphysis is ununited, *fissura vesicae* results. It can also be assumed that rupture of the symphysis occurs, but that in some instances, if the force which caused it disappears, closing with union takes place. Thus the varying width of the pelvic gap can be explained.

TREATMENT.

In the simpler forms of extrophy, with an upper or lower *fissura vesicae*, an endeavor should be made to close the defect by making two parallel incisions on each side of the malformation to mobilize it and then after the edges of the fissure are freshened they are brought together by careful suturing.

Roux, in 1852, was the first to plan and carry out an operation for the radical cure of *ectopia vesicae* and after him a number of techniques were advocated. The most important of these is that of Sonnenberg. He removed the posterior bladder wall

from the peritoneum and covered the latter by two lateral flaps and inserted the ureters, which had been freed under the edges of the flaps, at a point where the sulcus of the penis begins.

Attempts to plant the ureters into the sigmoid flexure have never been successful, as these patients usually die from an ascending infection from the gut.

A second method has for purpose the direct union of the edges of the fissure. To accomplish this Trendelenburg first tried to do away with the pubic diastasis by cutting through the sacroiliac synchondrosis on both sides. Then with an apparatus which pressed the symphysis together, the patient was kept in the recumbent position for several weeks. The bones are finally held together by sutures. In order to make a spincter capable of contracting, free incisions are made in the upper wall of the funnel formed by the bladder and urethra in its pars prostatica, uniting the resulting wound by Lembert's suture. According to Thiersch, this technique is only applicable when a large portion of the bladder wall exists, for otherwise no reservoir could be formed for lack of material.

The third autoplactic method consists in forming an anterior bladder wall with flaps taken from the abdomen, but on account of the growth of hair incrustations form which greatly impair the end results of this technique.

Thiersch's method is undoubtedly the best and since its technique is generally known it is hardly necessary to refer to it here. Owing to the epispadias accompanying the ectopia this method is a long one, but the results seem to justify its undertaking. A summary of the results obtained by this method shows that of eighty cases so far done, of which sixty-five are known in detail, the autoplactic method is by far the best. For example, Pousson reports six cases combined with epispadias had been perfectly successful.

The question as to the time the operation should be undertaken can be answered that in strong children it should be resorted to as soon as possible, but operations as late as the fortieth year have been successful. The principal requirement is that the subject be free from any organic trouble, particularly any renal affection.

REPORT OF A CASE OF RENAL TUBERCULOSIS *

By G. S. GORDON, M.D., Vancouver, B. C.

DIAGNOSIS of this case was not made during life. I now think it should have been made, acted upon and a different result secured.

The patient was an Italian labourer, sent to me by Dr. Wrinch of Hasleton, in March, 1912. He could not speak English. He impressed one as a wiry, tough-fibred type of man, of medium stature. His appetite at this time was very good, his bowels regular and his only complaint was that he had to urinate every ten to twenty minutes night and day, with consequent dirtiness and loss of sleep. My notes do not indicate that any marked pain was associated with the condition. On physical examination all systems seemed normal except the genito-urinary.

There was a history of repeated attacks of gonorrhea and Dr. Wrinch had recently dilated the urethra for stricture. The urine was alkaline and cloudy with pus and Dr. McKee reported that it also contained a pseudo diphtheria bacillus and staphylococcus aureus. The bladder capacity was 120 c.c. Through the cystoscope the bladder presented everywhere granulation tissue and no landmarks could be made out. The only variation to the picture was what appeared to be a pustule in the region of the right ureteral orifice. A fistula was present in the perineum which off and on discharged pus but never urine. Per rectum there was little prostatic resistance to the finger excepting on the sides. Above and to the left the border of the prostate was continuous with a sausage-shaped mass extending upward in the site of the seminal vesicle. At the lower pole of the right epididymis was a smooth, oval, relatively hard body about three centimeters long and one and a half centimeters in diameter. It was easily definable with the fingers and had been there for three years. It had formed in three weeks without pain or associated urethral discharge and had not increased in size since then. Such was my understanding of the patient's account of it. The kidneys were not palpable or tender and a good X-ray plate by Dr. H. H. McIntosh revealed nothing abnormal in the upper urinary tract.

Von Pirquet's test gave a negative for tuberculosis.

Massage of the vesicles and prostate milked out much micro-

* Read before the Vancouver Medical Association, February, 1913.

scopic pus, but neither this, irrigations or forced dilatation of the bladder resulted in the slightest improvement.

In two weeks he was sent to the Vancouver General Hospital for further observation. Shortly after his entry to the Hospital, without recognisable cause his temperature rose to 103 or 4, and remained at this, with remissions, for several days. During this period urination became less frequent and there seemed to be slight tenderness over the right kidney but none over the left. In addition there was uncontrollable hiccough. Then the temperature dropped to normal, he again passed water every ten to twenty minutes and the hiccoughs ceased. This pointed to temporary occlusion of one ureter and so, notwithstanding von Pirquet's test being negative, Dr. McKee now twice sought for tubercle bacilli in the urine but without finding them.

Attempts at catheterizing the ureters with direct and indirect cystoscopes and again with a Buerger posterior endoscope were failures.

Being pretty well assured that we were not dealing with tuberculosis, Legueu's operation of catheterizing the ureters through a suprapubic opening was next unsuccessfully tried. I do not now believe that this procedure will meet with success when cystoscopic catheterization has failed; and it should not be attempted except as an incident in cystotomy for other purposes.

For a week after this misguided operation there was a temperature reaching 102, with obstinate constipation and renewed hiccough, all of which finally disappeared with a croton oil evacuation of the bowels.

The next phase of this illness showed as what appeared to be hydrocele. On tapping this, however, pus not serous fluid came through the canula. The left testis and sac were removed en masse. This wound healed by first intention. Epididymectomy would have required undesirable drainage and so this more conservative course was rejected. The nodule in the lower end of the epididymis consisted of dense scar tissue to a depth of about .75 centimeter enclosing an abscess. Unfortunately the specimen was mislaid without further inspection.

Three weeks later an abscess appeared in the groin over the cut end of the vas, which had been tied with catgut. This abscess was opened. The vas, now patent, was stitched to the skin and protargol solution injected through it for a time but with no appreciable result.

The fistula in the perineum had closed and fluctuation was next noted here. On incision, a small lake of pus was evacuated and a sinus feeding it followed to the prostate. This was opened freely and drained.

Signs of septic absorption continued and vesiculotomy was done.

None of these incisions showed any inclination to close. The general condition changed only for the worse. Prolonged septicemia was evidently wearing out the patient and he became extremely emaciated.

During the whole time he was under my observation there were no local signs of the kidneys being involved except the tenderness in the right renal region above referred to. This showed itself again in the last week of life. How carefully these examinations were made may be judged from the fact that from the very first the kidneys were suspected and remained so throughout. The left kidney was never tender or palpable.

A week before death Dr. McKee made another examination of the urine for tubercle bacilli and this time they were found in large numbers.

At this stage tuberculin treatment was hopeless.

After death I obtained a cursory view of the kidneys. The right appeared to be only functionally hypertrophied and congested. It may have contained miliary tubercles which I could not distinguish. The light was poor. The left kidney was a large sac containing pus, caseous material, some of which had broken down, and a thick crumby fluid. Very little renal tissue could be distinguished. From the position of this sac (high up and spread out on the diaphragm) and from its compressibility one could easily see why it was not palpable through the abdomen.

Diagnosis: When this man first came to me with a history of repeated gonorrhea, stricture, persistent urethritis, destructive prostatitis, chronic vesiculitis (with occlusion of its duct), a chronic epididymitis confined mainly to the lower pole, and endo- para- and peri-cystitis the picture of a post-gonorrheal condition seemed complete.

Cystitis was the dominating figure in the picture. On diagnosis of the origin of this cystitis hinged the whole subsequent course of events. There were reasons, I think you will admit, for considering this an ascending infection from the urethra to the prostate, thence to the bladder wall, thence to the bladder

epithelium, a para then an endocystitis. Infection and occlusion of the common duct in the prostatic urethra would lead to infection and distention of the vesicle and pericystitis. The nodule in the lower end of the epididymis would be accounted for. This is the common site of gonorrheal extension by way of the vas. *Pseudodiphtheria* bacilli and staphylococci, the microorganisms present, would be capable of producing this condition, and infection by them is usually a legacy of gonorrhea.

The cystoscope gave the first indication that we had not got to the root of the matter. It showed a cystitis not localised to the parts overlying the prostate and vesicle, but universal. Now an ascending cystitis first involves the deep layers and thence invades the epithelium. It is a periprostatitis if you will, and is pretty well confined to the neck of the bladder, a cystitis coli. A cystitis spreading from the vesicle would show inflammation most marked in that area. The lesions in the bladder would more probably be localized. On the other hand a descending tubercular cystitis may not only have the ureteral orifice inflamed, but discrete ulcers are frequently located on the opposite side, in the course of the ureteral jet of urine. As a sequel to coalescence of such lesions we would have the cystoscopic picture found in this case. However the ureters could not be catheterised and tubercle bacilli could not be found in the urine. Von Pirquet's test was negative. Later when slight tenderness developed over the right kidney, with hiccough, temperature and improvement of the bladder symptoms, tubercle bacilli were again looked for in the urine but without success, and the probability of the seminal vesicle becoming temporarily obstructed (with a consequent checking of the outflow of irritant pus) was thought sufficient theoretical explanation of the condition, more especially as the tenderness over the kidney was not very definite. The significance of the hiccough was overlooked. As time passed the fact that incisions would not heal again suggested tuberculosis and the microorganism was found in pus from the abdominal wound. Tuberculosis once established, the source was evident from the cystoscopic picture, hiccough and tenderness over the right kidney. It was not, however, this kidney which was involved, but the left. This is not to be wondered at, as the sound kidney in unilateral tuberculosis not only does the major part of the work, but is handicapped by having to excrete the products of inflammation in the other kidney. Urine from the sound kidney in these cases very often contains

albumen and casts and these disappear shortly after the infected organ is removed. Whether this is the cause of referred pain in these cases or not, the pain and even tenderness is very frequently felt over the good kidney only. I am not going into diagnosis of renal tuberculosis exhaustively but only the points of this case. They are common-place indeed, but if they had been taken at their proper value it is probable I would have had a different story to tell. Therefore pardon me if I accentuate them.

1. The presence of other microorganisms in the urine does not exclude tubercle bacilli. Probably the tubercle bacilli gives no symptom if alone.

2. The gonococcus is frequently a red herring drawn across the trail of the tubercle bacillus.

3. In suspected cases, expert examinations should be made for the tubercle bacilli. One negative finding is not conclusive, nor two — perhaps not three.

4. The von Pirquet test should not be relied on to the exclusion of other tests.

5. Renal tuberculosis may give no local sign or symptom of the disease.

6. A good state of general health does not exclude tuberculosis of the kidney.

7. There may be no typical tubercular ulcers in the bladder in renal tuberculosis, even when the bladder is secondarily infected.

8. Tubercular epididymitis in some cases is secondary to renal tuberculosis and often calls for examination of the kidneys if the primary focus is to be found as early as possible and extirpated at the most hopeful time.

9. Cystitis is practically never a primary disease. If rebellious to treatment the source of infection is to be sought either above or below the bladder.

10. In all cases of tuberculosis of the bladder the ureters should be catheterized when possible. When this is not possible, if satisfactory explanation of the source cannot be found in the epididymis or perhaps the prostate the kidneys should be explored through incisions.

11. In renal tuberculosis the better kidney is very often the tender or painful one.

12. Hiccough may result from inflammation spreading around the kidney to the diaphragm.

RENAL GONORRHEA *

By CHARLES M. HARPSTER, M.D., Toledo, Ohio.

Genito-Urinary Surgeon, Toledo Hospital.

ALADY 30 years of age, with a negative family history, was examined with a Nitze cystoscope in February, 1912, for one of our practitioners, and the bladder was found violently inflamed in the region of the trigone, also hemorrhagic spots were present, about eight in number. The sphincter was edematous, bladder capacity about five ounces, right ureteral opening prominent, red and irregular. The urine was loaded with pus macroscopically and was voided about every 30 minutes day and night, and urination was very painful. No further investigation was made at this time and daily irrigation of silver nitrate 1-1000 advised and used, also urotropin. I did not again see the patient, as I was in Europe, until May 1912, when I again made a cystoscopic examination at St. Vincent's Hospital and found pus coming from the right ureter in a worm-like mass. The husband admitted he had had gonorrhea about 2 years before, still had shreds in urine, but no visible discharge.

Urination had been frequent and painful for about 18 months previous to my first examination, and a tubercular bladder had been diagnosed and treatment given for same, without any benefit. The silver nitrate irrigation had been used, as advised by the family physician, without any improvement, and, in fact, the condition was fast destroying the patient. During the interval between my first examination and my second examination the patient had lost considerable flesh, and was anemic and greatly debilitated, had had chills and fevers for some weeks also. The von Pirquet skin test was negative, as was also the guinea pig test. The urine was found swarming with gonococci by my assistant, Dr. Klopfenstein.

In May, 1912, the ureters were catheterized and the functional tests were made. Phloridzin was found in the urine from the left kidney in 15 minutes, did not appear from the right kidney in 30 minutes, except a slight trace. Indigo carmine appeared in the urine from the left kidney in 7 minutes, did not appear from the right kidney at all in 15 minutes. Phthalein, 41%, was passed from the left kidney in one hour and 10% from the right kidney in the same hour. It appeared from left kidney in 5 minutes, from right in 12 minutes. Cryoscopy, right 1:36; left

* Read before the American Urological Association, Boston, April 15.

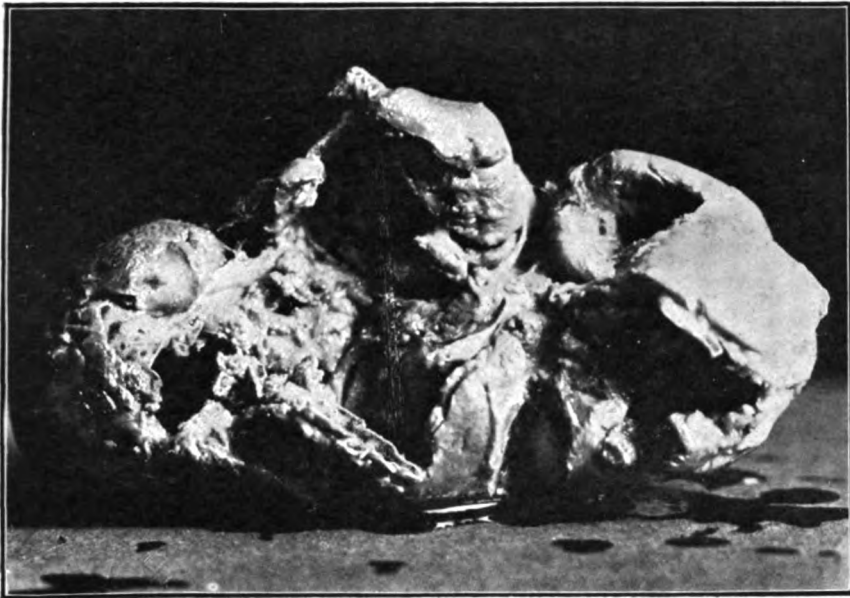
1:12. Amount of urine passed from right kidney in one hour was 40 c.c.; from the left kidney 165 c.c. Sp. gr., left 1020; right 1026. The bladder was catheterized after the ureteral catheters were removed and about a teaspoonful of urine was secured, so that no extra-ureteral catheter flow was present.

In June, 1912, as the left kidney seemed to be nearly normal from the tests previously made, and as the right kidney was evidently seriously impaired, an operation was made and the right kidney removed. The specimen is shown here by the photographs, which are exact reproductions as to size. The capsule is also shown, which was greatly thickened as can readily be seen. The kidney was practically a pus sac with five compartments, and a smear taken at this time and stained by the Gram method again demonstrated the gonococci in large numbers. Cultures made showed the gonococci also. The ureter was fixed in the wound, and the patient, after an extended convalescence, gradually recovered. The kidney was adherent to the peritoneum and there were extensive adhesions to the liver. The capsule could not entirely be removed. Vaccines of the gonococcus were used in the after treatment.

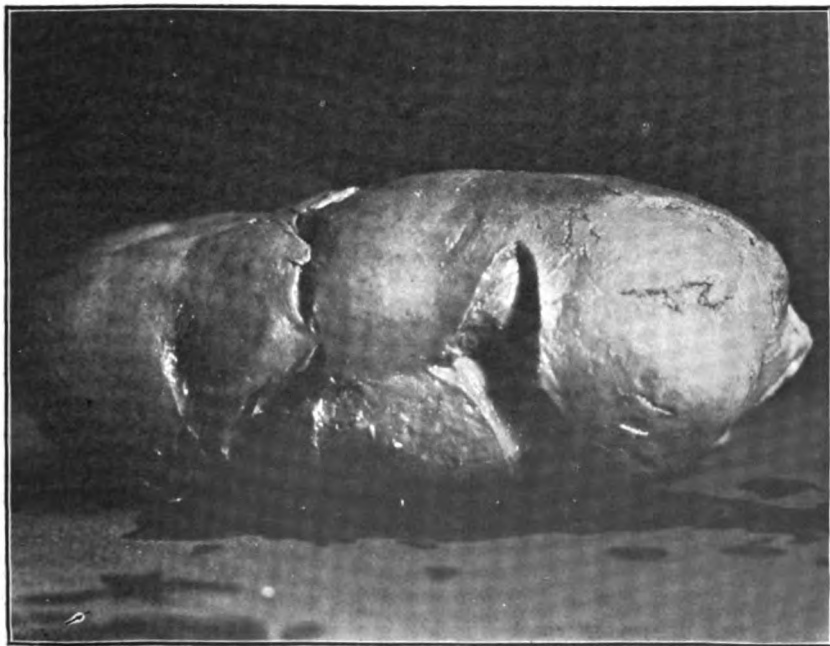
"Gonorrheal pyelitis is recorded in our literature in 20 cases. In five the gonococcus was obtained only from the voided specimen; in two the pyelitis was due to a mixed infection; in four no cultures were obtained; in one a nephrectomy was done and the diagnosis made from the specimen; in four the disease was only recognized at autopsy. In only four were cultures obtained from the kidney during the course of the disease."

Lehr says in reporting a case in the *J. A. M. A.*, July 6, 1912, page 36, that "the possibility of this complication of gonorrhea may be more common than the comparative scarcity of the literature would indicate."

His patient was a man aged 27, and followed an urethral infection either in 1903 or 1905 or Nov. 6, 1911. The best treatment given was lavage of the kidney pelvis with 200 c.c. of silver nitrate solution, 1 to 5000. There was evidently no involvement of the kidney structure, and the infection was undoubtedly confined to the pelvis of the kidney. The excellent results secured in this case Lehr thinks were due to the large quantities of the weak solution of silver nitrate used and the fact that chemical and mechanical irritation was avoided by using a small catheter, No. 5, and a very weak solution. The pathway of infection in this case he thinks was probably by continuity or by means of the lymphatics, or both; the lack of all complications



Kidney, Showing Pus Pockets

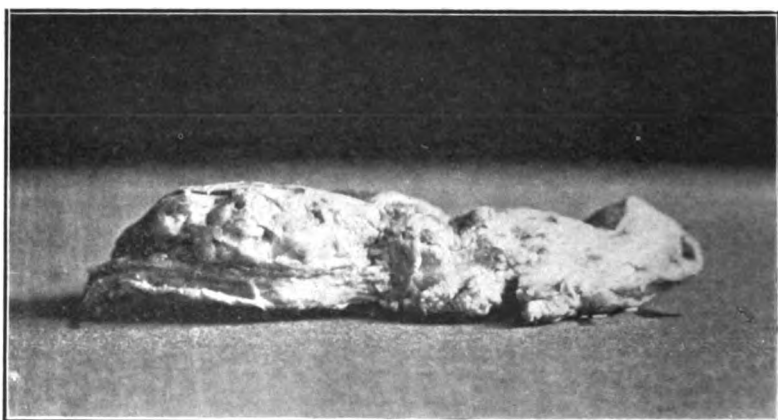


Showing Ruptures Present

and systemic symptoms indicating the absence of any general infection. Most authors hold that in infection of the kidney by means of the blood current the cortex would be primarily involved.

Hagner reports a case in the *Medical Record*, October 1, 1910, in which the gonococcus was obtained in a pure culture. He says there is a diversity of opinion as to whether the infection is an ascending, hematogenous or lymphogenous one. "From what I can learn it seems more than probable that in the largest number of cases it is an ascending infection due to extension along the lymphatic vessels surrounding the ureters. It has been shown by Albarran that an intimate relation exists between the lymphatics supplying the posterior urethra, bladder and kidney."

One of the most misleading points in some cases has been in assuming that the inflammation of the bladder must precede the



Piece of Capsule Removed

involvement of the kidney. However, in my case the bladder involvement was primarily intense and violent and I am certain the bladder was infected before the kidney had been involved extensively. In some cases reported the bladder seemed free from involvement except for one or more reddish lines, apparently under the mucous membrane, extending from the urethral to the ureteral orifices. Israel and others have reported cases of ascending infections of the kidneys which have not been preceded by active bladder involvement.

Hagner says that in his case no evidence of cystitis was present, except an increased reddening of the trigone and right ureteral orifice.

Watson and Cunningham in their text book give in the following order the organisms that cause renal infection and sup-puration; the colon bacillus, staphylococcus, streptococcus, proteus vulgaris, pneumococcus, typhoid bacillus, and the gonococcus.

It is the general opinion that the gonococcus prepares the place where other organisms can develop by lowering the resistance of the patient, and we know that tuberculosis of the testicle, epididymis, and prostate often follows a gonorrheal infection. It is possible that by more careful investigation of the urine, and where necessary, of the separated urines, the gonococcus will be more frequently demonstrated, and often the cause of a pyelitis traced to this organism.

In my case, the amount of kidney structure destroyed was very great and possibly depended in a great measure upon the length of time the infection had taken place, and also that the infection had occurred perhaps primarily in the cortical substance.

The case reported by Bransford Lewis lasted 12 years, as during all this time the man had purulent urine and symptoms in the affected kidney. There was an interstitial nephritis associated with numerous suppurating places that had evidently been present for a long time. If an early diagnosis could be made such a case as mine, where destruction was extensive, might be avoided by proper treatment, and total destruction could be prevented, and the case demonstrates again the necessity for careful, accurate and proper examination of the urine by one competent to do so.

H. H. Young reported a case in 1897 in which gonococci were found in the urine in a patient suffering from double pyelitis. The urine was obtained by suprapubic puncture, as retention was also present, and gonococci found on cover glass and by cultures, no other organisms being demonstrated. Young says the gonococcus was the cause of the pyelitis, for if it had been caused by any other organism it would have been demonstrated in the urine obtained from the bladder, although the ureters were not catheterized. Young thinks this is the first case in which the gonococcus was demonstrated as causing pyelitis.

Wossidlo, my preceptor, states that a gonorrheal pyelitis or pyelonephritis may be the termination of an acute or chronic urethral gonorrhea. His investigation leads him to think that a mixed infection is usually present and that staphylococci, streptococci and coli communis are in the order named the most frequently found in conjunction with the gonococci. Mendelsohn

found only gonococci in the urine in a patient 70 years of age, 45 years after the infection had taken place. Asahara found in a kidney infarct post mortem pure cultures of the gonococci. Politz and Arpad Gerster found in a section of a pyelonephritic kidney gonococci in the pus from the kidney. Pyelitis he thinks usually follows a gonorrheal cystitis, although it can also follow other gonorrheal sites of infection, as Israel and Ulmann have pointed out cases following a gonorrheal prostatic abscess. Casper reports two cases in which a gonorrheal infection of the kidney followed an acute urethral gonorrhea. Murchison describes a case in which the infection extended from the bladder mucosa along the ureter to the kidney pelvis by continuity.

E. O. Smith reported a case before the Cincinnati Academy (June 6, 1912) of gonorrheal infection of the renal pelvis. The case was treated by daily catheterization of the ureter and washing of the pelvis with protargol solution for one week. Pain was relieved at once. Patient had had gonorrhea 5 years before and had been seen and treated twice since February 1912.

He called attention to the fact that 17 cases had been previously reported, and believed with proper diagnostic care more cases would be found. Also that the gonococcus may be virulent after five to seven years at least, and not as claimed by Keyes that the gonococcus can only live for 3 years.

Dowd (*Medical Record*, June 25, 1898), in discussing the infrequent recognition of gonorrheal pyelitis says: "The misleading point has been in assuming that the inflammation of the bladder must precede the involvement of the kidney pelvis. I have in a number of cases found the bladder free from involvement, the cystoscope showing only one or two areas of suspicion."

E. E. France reports the case of a woman, 26 years of age, suffering from ureteritis and pyonephrosis dextra of 4 years duration. Catheterization of the right kidney showed gonococci in pure culture. Nephroureterectomy was performed, resulting in cure. Examination of the large pyonephrotic sac showed microscopically lesions resembling those found in chronic parenchymatous nephritis, combined with numerous foci of chronic interstitial nephritis and severe pyelitis and ureteritis. He was not sure whether the condition was due to an ascending or descending process.

About half of the reported cases were due to a mixed infection.

Hagner's summaries of cases:

Friedrich Neuendorff (*Zur Frage von dem Vorkommen einer specifisch gonorrhoeischen Pyelitis*. Diss. 1892, Berlin) states that in 1883 Bockhardt injected a pure culture of gonococci into the healthy urethra of a man suffering from dementia paralytica. The patient died a few days later and the pus from the perinephritic abscesses was found to contain an unusually large number of gonococci, and Bockhardt assumed that he had to deal with a specific gonorrheal pyelitis. Since then many writers have expressed doubt as to whether Bockhardt used a pure gonococci culture. Neuendorff reports a case which he believes to have been due to gonococci. He found the organisms in the urine as it was taken from the bladder, not obtained from catheterization of the ureters.

Shinjiro Asahara (*Ueber Metastasen der Gonorrhoe*, Diss., Berlin 1898) reports several cases of mixed infection of the kidney and other organs, demonstrated post mortem. He reports one case of pure gonococcus infection: A servant girl, aged 16, was admitted to Moabit Hospital in Berlin, June 22, 1897. She was unconscious when admitted. The diagnosis was peritonitis, appendicitis, sepsis. She died June 25. Anatomic diagnosis: Septicemia. The cause could not be found at first. The pus from a renal abscess was examined microscopically and found to contain diplococci only; these were recognized to be gonococci. Suitable media was not at hand, and hence no cultures were obtained, as the organisms failed to develop on the media used. Gonococci were also found in the lungs. All metastatic areas examined microscopically revealed gonococci only, no other organisms being found.

Bransford Lewis (*Jour. of Cutaneous and Genito-Urinary Diseases*, v. 18, Sept., 1900, pp. 395, 404; also *Physician and Surgeon*, Lond., v. I, p. 167) reports a male, aged 54, single, laborer, admitted in a state resembling uremic intoxication in which he remained till death, six days later. Denied ever having gonorrhea or syphilis. He first noted dull pain in the region of the kidneys twelve years ago; there had been gradually increasing lassitude, headache, vertigo, failing vision, anemia, indigestion, insomnia and loss of flesh. Malarial organisms were found in the blood. Urine: sp. gr. 1014, alkaline, but large amount of albumin; there was a heavy, milk-like deposit containing epithelial cells undergoing fatty and granular degeneration, epithelial casts, leucocytes, and triple phosphate crystals. Antemortem diagnosis: Chronic parenchymatous nephritis and malarial intoxication. Treatment:

quinine, stimulants, and diuretics. No improvement; death. The right kidney was found to contain suppurating cavities, mostly about the size of a walnut. The infection came from the pelvis and collecting tubes, from there spreading to the intermediary zone and gradually absorbing the excretory structures, while the secretory portion suffered indirectly. The ureter also contained pus, and was thickened and dilated. Microscopical examination of the pus showed gonococcus organisms. Inoculations resulted in obtaining pure cultures of the organisms.

Bernhard Marcuse (*Monatsberichte f. Urologie*, Berlin, 1902, v. 7, pp. 127-190) reports a male, aged 25, who contracted gonorrhea two years previously, which was completely cured; second infection occurred in Sept., 1900, associated with cystitis. Internal and local treatment relieved the symptoms, but the urine remained cloudy with pus. While in Berlin in Dec., 1900, some one made a cystoscopy, diagnosing pyelitis of the right side. The right renal region was sensitive to pressure. The patient came to see Dr. Casper April 22, 1901. Cystoscopy with ureteral catheterization of the right ureter showed cloudy urine, pus cells in sediment, red cells in epithelium. The pus cells contained abundant intracellular gonococci of typical form, size and arrangement. The urine from the left ureter was normal. The kidney was treated with lavage of the pelvis twice during the first week, then once a week. On other days irrigation of the bladder and Guyon's instillation of the urethra were made. There was a favorable course. Several weeks after the first irrigation the urine was clear and no gonococci were found, when sudden recurrence took place; numerous pus cells reappeared with intra-cellular gonococci. Irrigations were renewed, and after a subsequent recurrence the condition finally cleared up. At the last pelvic lavage, in the beginning of August, 1901, the bacteria had disappeared. The patient was lost sight of. (The renal pelvis of the infected kidney had a capacity of 100 c.cm.)

Case 2. About the same time as above case there came for treatment a man, aged 23, with gonorrheic pyelitis, who had had a soft ulcer and balanitis a year before. He contracted gonorrhea for the first time on May 5, and was treated at once with injections and sandal oil; ten days later there was pain in the region of both kidneys, with fever and symptoms of cystitis; bladder irrigations were made. He was treated by Diday's irrigations since June; micturition became less frequent and painful; the discharge stopped, but the urine was sometimes clear, at other times cloudy.

Cystoscopy was done on July 30, 1901. Suppurating urine was obtained from the right ureter, containing numerous pus cells, some red cells, and epithelium, no casts and very little albumin. The pus cells contained numerous typical intracellular gonococci. The left ureter showed normal urine. Vesical irrigations were made only for a while. On Sept. 4, 1901, the first irrigation of renal pelvis with silver solution was made. Capacity of the renal pelvis was 25 c. c. Five days later the urine was clear, the patient felt better, and there was no fever. Sept. 11, 17 and 21 renal irrigations and vesical irrigation were made on alternate days. The urine was clear. On Oct. 28 and Nov. 21 examination showed that the urine had remained clear.

Bransford Lewis, 1906. Three ureters demonstrated during life; ureter-catheterization, giving three different urines, one infected with gonococci. (*Medical Record*, N. Y., Oct. 6.) Male, aged 24, was seen Feb. 3, 1906. Repeated recurrence of urethral gonorrhea since 1900, in spite of the employment of all known measures of treatment. When Lewis got the case he discovered three ureters, two on the left, one on the right side. The urines draining from the ureters bore no relation to each other. The urine coming from the ureter at the extreme left had sp. gr. 1005, was quite cloudy, with flocculi floating in it, while the other was more like normal urine. The urine from the extreme left ureter showed much pus and a moderate number of blood cells and epithelium. In a number of the pus cells colonies of diplococci that gave the customary appearance of gonococci to the positive methylene blue stain and decolorized after Gram's stain were found. In the urine from the middle opening no pus cells and no organisms were found. A colored silver solution was injected into the left catheter, the pelvis receiving about three drams without causing pain or reaction. The other catheter continued to drain unchanged; evidence of the total independence of the two sources of urine. The right kidney was not affected. Two days later the infected ureter was again washed with the silver solution. "The silver irrigations of the infected pelvis brought the result desired. Evidences of infection that up to that time were persistent almost immediately disappeared, and the urine as quickly became clear. The patient left for home within a week afterwards. Dr. Crook and the patient both write that there has been no recurrence of the trouble, although treatment has now been discontinued for over seven months."

Josef Seilei and Hugo Unterberg (1907, *Berl. klin. Woch.*, 1907, v. 44, pp. 1113-1115) report five cases of gonococcic in-

fection of the kidney observed in Budapest. The first case was one of mixed infection by long colon bacilli, diplococci, very thick, and gonococci. The fourth and fifth cases showed colon bacilli only. The third case was also a mixed infection; staphylococci, pseudodiphtheria bacilli, and gonococcoid bacilli. The second case was pure gonococcic infection: J. R., ailing for ten months with urethritis, prostatitis, and cystitis gonorrhoea. The cystitis had not improved under the usual method of treatment. Pyelitis was suspected. The left kidney region was sensitive to pressure. The right ureter was catheterized. The urine was cloudy and contained albumin. The sediment contained red cells, much detritus, and a few epithelial cells. Bacteriologically there were a very few diplococci, which were negative to Gram's stain. Cultures on Thalmann-Agar developed typical gonococcus colonies. The authors state that gonorrheal pyelitis is usually cured by rest and internal medication. Direct local treatment is advised in certain cases only, namely; those where internal medication has failed. Irrigation of the renal pelvis is then indicated. They injected from 6 to 10 c. c. of a boric acid solution and a 1-1000 silver solution with good results. They also employed collargol in 1 and 2 per cent. solution with like results. The injections were repeated once or twice a week. Several irrigations usually suffice to destroy the gonococcus. They injected from 5 to 10 c. c., allowing the solution to run out, and then injected some more. They used 5 c. c. with the first injection and successively increased the quantity till the patient experienced a sense of tension in the region of the kidney. In no case did they inject more than 10 c. c. at one time. All the cases recovered.

Weisswange (*Munch med. Woch.*, 1908, v. 55, No. 16, p. 967) reports a woman, aged 34, who developed fever, high pulse, and pain on right side seven days after confinement. Leucocytes, casts, and many gonococci were found in the urinary sediment. She was given medical treatment and improved to such an extent that she was dismissed. Some time later the symptoms reappeared. The right kidney was exposed; an abscess was made out in the upper portion extending into the kidney pelvis. An incision was made; numerous gonococci were found in the pus. Nephrotomy was done and recovery followed. She had not had gonorrhea for six years.

Any cases omitted in this paper are not intentionally overlooked, but due to the fact that I have not unearthed them. O. C. Smith recently reported two cases.

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SOME REMARKS ON THE DIAGNOSIS OF VESICAL COMPLICATIONS IN APPENDICITIS AND OTHER LESIONS OF THE ABDOMINAL VISCERA

By CHARLES CAILLET, M. D.

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IN these rambling remarks it is my intention to call to the notice of the profession some general information relative to the vesical complications arising in cases of appendicitis, as the question is of interest to both the urologist and surgeon and has not been dealt with as carefully as its importance justifies. After perforation of an appendix abscess has taken place into the bladder the following complications are encountered.

Hematuria. A female, who had suffered from an attack of suppurating appendicitis some time before, was suddenly seized in the middle of the day, without any apparent cause, with severe hematuria with clots. A month later blood again appeared in the urine and exploration of the bladder showed that the hematuria was of a decidedly vesical character. The diagnosis of a large bladder tumor was made, but the patient, who had become very anemic from loss of blood, began to run a temperature, while diarrhea and abdominal pain developed, and being considered an inoperable case, she died shortly after. There had been a perforation of the bladder during the former attack of appendicitis.

Vesical Calculi. Stone in the bladder following appendico-vesical fistulae is frequent and usually has as a nucleus some foreign body coming from the digestive tract, such as a pin (Goode and Kingdon) or fruit seeds (Jewelle). But the calculus may form infection of the bladder pure and simple (Fowler, Krackowiser), and the resulting symptoms become added to those of the appendico-vesical fistula. Micturition is frequent and painful on account of the coexisting cystitis; sometimes there is hematuria, but these three symptoms, which are produced by movement on the part of the patient, quiet down by rest. The pain arises more particularly after micturition; occasionally there is interruption of the jet of urine. By the searcher one obtains the usual evidences of a calculus, while cystoscopy, which is rarely necessary, is to be resorted to in doubtful cases.

The calculus, in cases of appendico-vesical fistula, is an evidence that the case is rather serious. The bladder has been infected for some time and the patient's general health becomes rapidly below par. The reported cases show this conclusively,

and if surgery is not resorted to death occurs in two or three years. As far back as 1839, Kingdon related the case of a seven-year-old child with a vesico-intestinal fistula. He died three years later, after running a high temperature from exhaustion. The diagnosis of calculus had not been made during life.

Krackowiser performed a lateral perineal section on a man who presented symptoms of bladder stone, with liquid stools having a urinous odor, containing mucus, blood and fibrinous shreds. He complained of vesical and rectal tenesmus. Nine calculi were removed but the subject died five days later.

Jewelle, in a young girl of seventeen years, thought he was dealing with a polypus of the bladder from the cystoscopic picture observed, but it proved to be a calculus, which was spontaneously expelled a week later. The appendix was removed and the patient recovered.

A man, aet. 62 years, suffered from a chronic cystitis due to an appendico-vesical fistula and was in very poor general health. A stone was discovered and by cystotomy a phosphatic calculus the size of a walnut was removed. The patient recovered without further surgical aid and was discharged several weeks later.

Pyelonephritis. The bladder being infected by a fistula from the appendix an ascending pyelonephritis may result. A male, aet. 35 years, developed an appendico-vesical fistula. At irregular intervals, varying from twenty-four to thirty-six hours, clear limpid urine would be voided. Finally the general health became poor, and the integuments took on the characteristic paleness of severe infection. Sweating was profuse and after a chill the temperature went to 40.5° C. It was also evident that pus had been regularly evacuated into the bladder, and although the kidneys were not enlarged nor painful it was manifest that pyelonephritis had developed. The analysis of both urines showed granular casts and renal cells, besides epithelial, caudal and round cells.

Coming now to the diagnosis, let it first be said that when retention of urine occurs in appendicitis, the urinary apparatus being known to be normal, the relations between the cause and effect are obvious, the retention being of a reflex nature. But it may happen that, the cause of the retention not being discovered by any lesion of the urinary tract, the physician gives no attention to the appendix. He should systematically examine the abdomen to ascertain if any of its organs is the seat of some lesion,

and the physical and functional symptoms revealed at this examination may lead to the discovery of a diseased appendix.

I have pointed out that a uretero-pyelonephritis may result from an inflammation of the appendix, and in these cases there may be a reflex retention of urine. The prognosis should be guarded, and if removal of the appendix does not do away with the urinary symptoms it is of utmost importance to palpate the ureter and kidney, to follow the temperature chart and the condition of the urine.

Pericystitis and cystitis with plastic or suppurating peritonitis. The symptoms of pericystitis and cystitis having been observed, the appendicular origin must be proven. Each organ capable of causing such symptoms should be examined in turn and the urethra, bladder and ureter in the first place.

Tubal inflammation. If the patient is a female, the adnexa are to be carefully examined, but the physical signs offered in cases of tubal or periuterine inflammation on the right side are similar to those occurring in a pelvic abscess due to the appendix. Therefore, this organ must be carefully explored in order to eliminate any trouble there, after which the tubal or periuterine origin of the pericystitis can be accepted.

Sigmoiditis. I have had one case where the diagnosis of sigmoiditis was made where in reality it was a generalized peritonitis due to a perforating gangrenous appendix. Rectal examination showed normal seminal vesicles and prostate but above them was a large painful mass, not very hard to the feel, projecting on to the rectum. On the left the mass was more painful and harder, with more decided bulging than on the right. The vesical disturbances which were present were exaggerated by rectal examination. Here was a case of pelvic abscess with vesical involvement but the lesions appeared to arise from the left side of the pelvis, so that the diagnosis of a diseased appendix was not made because abdominal palpation gave no clue to the condition. The diagnostic error is easily explained because the purulent collection surrounded the sigmoid flexure, which itself was greatly diseased, so much so that in the beginning of the operation the diagnosis of sigmoiditis was still adhered to. From this typical example it becomes evident that there are cases where it is clinically impossible to differentiate between a sigmoid and appendicular origin in bladder disturbances resulting from a pelvic abscess.

The diagnostic means at our disposal for demonstrating a sigmoiditis are uncertain. Rectal examination gives only vague

indications, while vaginal exploration has never served to distinguish between a perisigmoiditis, suppurating lesions of the adnexa, and pelviperitonitis. By rectoscopy the rectal mucosa is redder than normal, but this is quite insufficient to make a diagnosis.

During an appendicitis a vesical perforation is discovered.

When a perforation is diagnosticated, the appendicular origin must be proven and one must show that those affections, other than appendicitis, which can give rise to perforation of the bladder are not in play. The uterus and adnexa must be examined. An intestinal lesion, such as cancer, tuberculosis, syphilis or actinomycosis, can by extension perforate the bladder.

Intestinal cancer is recognized by blood in the stools, digestive disturbances, the age of the patient, radioscopy, rectoscopy and sometimes by rectal digital examination. Then if the bladder becomes involved by extension of the neoplastic process, the symptoms of vesical malignant disease will become added to those of the perforation, such as spontaneous, painless and severe hematuria uninfluenced by rest or medication, the passage of bits of neoplasm, sometimes a fetid odor of the urine, and fibrinuria giving rise to a jelly-like mass in the test-tube. Cystoscopy will also be of great diagnostic value.

Intestinal tuberculosis gives rise to spontaneous pain or one provoked by the ingestion of food or palpation; there are gray-colored liquid stools of great fetidity, melena, and sometimes strips of the intestinal mucosa are passed. Diarrhea may be replaced by constipation. There is ascites and edema of the lower limbs. Intestinal tuberculosis is generally secondary to pulmonary lesions. After perforation has taken place the symptoms of vesical tuberculosis may sometimes occur.

Actinomycosis of the cecum or appendix can produce lesions of the bladder wall. The affection first manifests itself by the phenomena of enteritis and peritoneal reaction, or it may undergo a chronic evolution with much appearance of a neoplasm. But when perforation of the bladder takes place pus loaded with yellow grains will escape into the bladder and will be found in the urine.

A pelvic or lumbar tuberculous ostitis gives rise to an abscess which by coming in contact with the bladder may result in perforation of the viscus. Grumous pus will then appear in the urine, having all the characters of tuberculous suppuration.

The appendicitis is not recognized and the perforation of the bladder is not at once discovered. An attack of appendicitis

may be overlooked and the patient presents cystitis and pyuria or simply cloudy urine. The perforation will then most likely be mistaken for some other urinary lesion. In uretero-pyelonephritis the amount of urine is increased. Usually it is cloudy and clears by standing. The kidney may be felt enlarged and painful, likewise the ureter. Cystoscopy will show an inflammation of the ureteral orifices. There may be sudden retention of pus causing the temperature to go up.

In renal tuberculosis the urine is often rich in caseous particles, the hematuria is slight, transient, spontaneous and painless; there may be ureteral colic due to the passage of blood-clot. The general health of the patient and cystoscopy will complete the diagnosis in most cases.

If there is cystitis the cause must be looked for by a search for gonorrhea, calculus, stricture, prostatic hypertrophy or the history of the introduction of unclean catheters. The purulence is slight in tubercular cystitis and inoculation of animals may be necessary to determine the presence of the bacillus. The hematuria is spontaneous, slight in amount and capricious; rest has no effect upon it. Pain is frequently atrocious, and more marked at the end of micturition.

A bladder perforation of appendicial origin may be mistaken for a vesical neoplasm, but a properly conducted cystoscopy will demonstrate the error unless bleeding obscures the view. In one case where an erroneous diagnosis was made of a large vesical neoplasm, autopsy showed small, more or less pedunculated polypiform growths the size of a millet seed, brownish and as if ulcerated on their apices, disseminated over the posterior wall of the bladder. The bladder had been perforated by an intrapelvic tubercular process and the bladder lesions were tubercular in nature. Had cystoscopy been done in this case this inflammatory neoplasm might easily have been taken for a malignant growth, but one would have also seen two small rounded perforations in the bladder walls giving issue to a large number of putrid clots.

By cystoscopy the cause of the pyuria will be discovered, namely the fistula, but not in every case, as Jewelle has pointed out. One must not mistake the fistulous opening giving exit to pus for a ureteral orifice of a pyelonephritis which also voids pus. All that is necessary is to locate in the first place both ureteral orifices and to know that the opening of the fistula as seen by the cystoscope is generally very different from that of the ureters.

The perforation being found, what is its cause? The search for the etiological factor of the fistula is occasionally an easy

matter and in one of my cases where the patient had been operated on for an acute appendix there was both a right-sided iliac fistula and one in the bladder. Consequently the diagnosis left no ground for error.

But such is not always the case. The lesion of the appendix is sometimes ignored and is only discovered after elimination of all factors which might cause a perforation of the bladder. As these have been considered in some detail, I will not refer to them again.

What is the type of appendicitis? After eliminating all the etiological factors and a diseased appendix being known to have resulted in a perforation of the bladder, the question arises as to what type of appendicial lesion one is dealing with. Is it a simple suppurating appendicitis, an appendico-cecal tuberculosis or an actinomycotic lesion of the organ.

Tuberculosis of the appendix is a clinical rarity but common microscopically. It usually takes on a chronic evolution, without much general disturbance. What is remarkable from the standpoint of the diagnosis is that recovery from the mild paroxysmal attacks to which it gives rise is slow and long. The patient does not recover promptly, and presents all the evidences of a chronic colitis, so that when dealing with such a case if tubercular antecedents are discovered in the patient's history this pathologic process must be taken into serious consideration.

Cancer of the appendix is now known to be not an infrequent lesion of the appendix, but clinically these cases simulate an ordinary catarrhal inflammation of the organ. The process is a latent one without any symptoms strictly belonging to it. However, when advanced the malignant growth may become adherent to the bladder and perforation result.

Retrospective diagnoses. And finally, it may perchance happen that a retrospective diagnosis is made. While doing a cystoscopy for some reason other than a search for a vesical fistula the cicatrix of a bladder diverticulum may be discovered whose etiology no longer remains doubtful when the pathological antecedents of the patient are gone into with some detail. One such instance has come to my observation. The case was that of a young girl who had been operated on for an acute appendicitis several years previously, since which time she had suffered severely from the bladder. The urine was very purulent since the operation. Cystoscopy revealed a cicatricial diverticulum, undoubtedly the result of a former perforation of the bladder by the inflamed appendix, which was removed and had at the same time allowed the fistulous opening in the bladder to close.

REVIEW OF CURRENT UROLOGIC LITERATURE

ZEITSCHRIFT FÜR UROLOGIE

Vol. VII, No. 3, 1913.

1. Contribution to the Study of Diseases of the Urethra. By E. Roucayrol. P. 181.
2. A Case of Syphilis of the Bladder. By R. Picker. P. 192.
3. Pneumaturia and Apparent Cessation of Glycosuria in Diabetics with Bladder Troubles. By Dr. Teschemacher. P. 197.

1. Contribution to the Study of Diseases of the Urethra.

The author reports the case of a man of 26 suffering from chronic gonorrhea and prostatitis who received active local treatment but who nevertheless (or perhaps thereby) developed constitutional gonorrhea following a severe grippe infection. The constitutional invasion manifested itself as an abscess of the left biceps from which an organism closely resembling the gonococcus was isolated and an autogenous vaccine made. Complete recovery followed the use of this vaccine in increasing doses.

The writer points out that this case has shown that a chronic gonorrheic may harbor an attenuated gonococcus in his urethra without the organism being present in the discharge. These organisms may be roused to full activity by a coincident, superimposed infection, but can be permanently overcome by the use of an autogenous vaccine. Roucayrol believes that the local treatment in this case was too intense and that instead of merely sufficing to draw out the organisms it defeated its own purpose in forcing them into the system at large.

The organism recovered from the arm abscess had some cultural and staining points of difference from the ordinary gonococcus. The author cites similar findings by other authors in chronic gonorrhea cases and concludes that the gonococcus from its long sojourn in the body, especially in extra-genital organs, may assume characteristics differing more or less from the classic type.

2. A Case of Syphilis of the Bladder.

Picker's case was a man of 44 who sought treatment because of bladder trouble. He had had lues 25 years previously, for which he underwent 15 inunction cures. He had also had gonorrhea with a right sided epididymitis. The patient's present complaints were of 10 days' duration and consisted of increasingly severe pains in the bladder region especially on micturition. The urine was cloudy.

Cystoscopy revealed a tolerant bladder which was of normal appearance everywhere but in the trigone and fundus, where it was swollen and of a peculiar livid (bluish-red) hyperemia. This tumefaction was especially well marked medial to the opening of the right ureter at the beginning of the fossa retroureterica. Helmitol was given

internally, and locally a permanent catheter was introduced and then silver nitrate irrigations were employed, but there was no improvement in the man's condition. In view of the specific history all other medication was stopped and potassium iodide begun. In about a week the urine was clear and the mucosal swelling had begun to diminish. One week later another cystoscopic examination showed further improvement in the local condition but revealed a peculiar infiltrated ulceration of a portion of the mucosa (shaped and colored like a pansy blossom) to the median side of the right ureteral aperture. In another week this ulcer had disappeared and the entire condition was greatly improved. A month later the patient was still well; the iodides were being continued.

In commenting on this case, the author points out that despite a negative Wassermann reaction the condition was clearly a manifestation of a late stage of syphilis. Owing to the early stage of the local lesion there was no hematuria, this being a symptom almost invariably described in the previously reported cases of this disorder. Because of this feature, as well as the small size of the ulcer above described, the author feels that his case is the earliest described instance of tertiary syphilis of the bladder.

3. Pneumaturia and Apparent Cessation of Glycosuria in Diabetics with Bladder Troubles.

Teschemacher describes three interesting cases of diabetics in whom, owing to a specific form of decomposition in the bladder, sugar was no longer demonstrable in the urine. The first of these cases was associated with pneumaturia. The patient was a diabetic of 15 years' standing, who for the last few years was steadily running from 1.2, to 1.5% sugar in his urine. Recently a cystitis which he had had for some time gradually became much worse and the patient noticed that he passed "air" with his water on several occasions. At the same time the urine was examined and was found to contain but 0.35% sugar; the sediment showed many leucocytes, epithelial cells and bacteria. During the next few days a more liberal diet was instituted than the one heretofore ordered, and yet the urine showed only traces of sugar. Boracic acid irrigations were instituted and in 8 to 10 days the cystitis was much relieved and the pneumaturia ceased. On the other hand the sugar content of the urine gradually rose to 1.2%.

The second case was that of a woman, diabetic for many years, who complained of a sudden aggravation of a long-standing cystitis. The urine contained no sugar whatever, whereas only a week before it showed 2.75%. In this case, as in the preceding, the sugar reappeared as the cystitis cleared up. The third case was similar to the second, the patient being a boy of eleven.

The author points out the relative rarity of pneumaturia — one case in 2800 personal observations — but remarks that this phenomenon

may be of value (as it was in his first case) in interpreting correctly a sudden disappearance of sugar from a diabetic on a constant diet.

The gases in such cases are usually carbon dioxide and hydrogen.

FOLIA UROLOGICA

Vol. VII, No. 6, 1913

1. Nephrolithiasis. By G. v. Illyés. P. 335.
2. Two cases of almost complete Extirpation of the Bladder for Tumor. By Giorgio Nicolich. P. 371.

1. Nephrolithiasis.

Illyés has observed 81 cases of renal and ureteral stone, 63 of which came to operation. The most prominent "stone countries," according to the author, are Russia and India, England and Holland, and Hungary, along the Danube and Theiss rivers. Cases were observed where the colicky attacks were localized to the right side whereas the stones were found in the painless left kidney (reno-renal reflex). On cystoscopic examination the ureter opening of the diseased side showed one or more of the following changes: Tumefaction, edema bullosum, occasionally fissure, irregular aperture.

Functional tests, especially cryoscopy, can reveal changes on the affected side, even in aseptic kidney stones, from which operative indications can be gathered. There was not observed any striking diminution in the indigocarmin excretion of the affected kidney. In long-standing cases of suppurating *unilateral* nephrolithiasis the urine from the *opposite* kidney generally contains albumen and hyaline and granular casts. In such a toxic nephritis when the kidney function is, all thing considered, sufficient, the removal of the suppurative kidney is strongly indicated.

It is not uncommon to find a stone where the X-ray picture is negative.

As regards operative treatment, small movable stones in the kidney pelvis are best removed by pyelotomy, which is most readily done on the inner aspect of the kidney. In a suppurated stone kidney with diminished function a primary nephrectomy is indicated. Nephrotomy should be done only when pyelotomy cannot be carried out and when we are sure of obtaining a well functioning kidney. In bilateral nephrolithiasis the most seriously diseased side should be operated on first. A reflex anuria occurs apparently when a slight change has occurred in the other (healthy) kidney as a result of which the kidney function becomes easily upset.

Ureteral stones are best discovered and localized by the aid of the author's ureteral mandrin-catheter described in 1901, and by the aid of the X-rays. In women, stones located in the lower part of the ureter can be readily removed through the vagina.

2. Two Cases of Almost Complete Extirpation of the Bladder for Tumor.

Nicolich points out that Tizzoni and Poggi were the first to demonstrate the possibility of total cystectomy. In 1888 they performed the following experiment: At the first operation they excluded a loop of small intestine and at a second sitting amputated the entire bladder down to its neck, replacing the organ with the loop which had been nourished by its mesentery and which was meant to serve in the future as a reservoir for urine. After some time the bitch thus operated on urinated normally and the experiment seemed successful, but nature improved upon the ingenuity of the investigators. The dog possessed a bladder just as if hers had never been amputated; in relation to this true bladder there was a useless diverticulum-like appendage representing the intestinal loop which had been grafted on to the bladder neck three years before.

Schwarz, a pupil of Tizzoni's, undertook to find out what would become of the blind cervico-vesical pouch when closed upon itself without intestinal anastomosis. He found that complete resection practiced immediately above the entrance of the ureters is quite possible and that from this vesical fragment of the neck and perhaps from the upper part of the urethra there was reproduced in a short time a new hollow organ capable of retaining urine like a normal bladder. The success of the author's two operations shows that it is possible to attain in man what Schwarz accomplished in animals.

The first patient, 72 years old, had a cancer which involved almost the entire bladder except the trigone. The author removed the entire involved portion of the bladder, tamponed the resulting cavity and sutured the peritoneum to the upper angle of the abdominal incision. Fifty-two days after the operation the patient was urinating every three hours and completely emptied his new bladder. Ten months after the intervention he was still well.

The second patient, aged 44, had already been operated on twice for multiple papilloma. The same radical procedure was done in this case with a similar good result. After twenty-two days the wound was closed and urination, which took place every four or five hours, was perfectly normal.

ANNALES DES MALADIES VÉNÉRIENNES

Vol. VIII, No. 2, Feb. 1913.

1. A General Review of Early (Precocious) Syphilitic Albuminuria with Report of a Case. By Pierre Théodoresco. P. 81.
2. The Contagiousness of Syphilitic Spermatic Fluid. By Armando Businco. P. 106.
3. The Antigen in the Wassermann Reaction (Fourth Note). By A. Desmoulière. P. 113.

4. A Case of Late Hereditary Syphilitic Hyperostosis of the Long Bones.
By A. Levy-Bing and Louis Duroeux. P. 116.
5. Twenty-three New Cases of Death from Salvarsan and Neo-Salvarsan in
in Six Months. By Dr. Burnier. P. 125.

1. Precocious Syphilitic Albuminuria.

Theodoresco has studied the literature and has found very few cases of albuminuria in the early (secondary) stage of syphilis. He finds that there is absolutely nothing specific in this phenomenon and that the theories which attempt to explain the ultimate mechanism of albuminurias from other sources can be equally well applied to syphilitic cases.

The patient studied by the author was a waiter of 23 who had had a previous history of epilepsy, orchitis, several blenorrhagies, and soft chancre. About a month and a half before admission to the hospital he had an eroding chancre which he treated and healed himself. About a month later he developed some papules on his penis and it was for the relief of this condition as well as of a preëxisting phimosis that he sought treatment. On examination he showed penile and scrotal syphilides, a phimosis, a bilateral indolent inguinal adenopathy (and for that matter a general adenopathy), a discrete roseola, a specific angina (his tonsils were enlarged and there were grayish white patches upon them), and a diffuse alopecia. An examination of the urine revealed the presence of six grams of albumen (presumably in a 24 hr. specimen). Casts and other formed elements were absent. There was no sugar. The Wassermann reaction was strongly positive.

The patient was put on daily (0.02 cg.) injections of the biniodide of mercury. The amount of albumen in the urine decreased steadily and in less than a month there was no trace of the foreign material. The author believes that in such cases as this the condition of the kidney itself determines the presence of albumen in the urine. In this particular patient with his rich pathological history the renal filter is to be regarded as a locus minoris resistentiae to the specific poison.

2. The Contagiousness of Syphilitic Spermatic Fluid.

Clinically there can be no doubt, says Businco, that spermatic fluid is infectious. It has been attempted, indeed, to explain the occurrence of hereditary syphilis from the father on other grounds. Thus some would argue that in these cases the mother was infected and transmitted the disease in turn to the fetus, but this is disproved by the fact that the mother can be neither infected nor immune as is shown by her succumbing later to the disease. Others would argue that the virus comes from some overlooked focus in the urethra or testicles but the most careful examination has failed to reveal such lesions.

Experimentally, it has been attempted to inoculate animals with syphilitic semen, but the results have been conflicting. The author himself has tried the following experiments: He took spermatic fluid

from two young syphilitics with active lesions but without local manifestations and made smears stained with Giemsa, but no spirochetæ could be demonstrated. He then inoculated four rabbits with this material, one into the anterior chamber of the eye, the others into the testicle, into the skin of the scrotum, and into the supraciliary region. The results were all negative. Yet despite these findings the author concludes that we cannot gainsay the evidence of clinical experience, that spirochetæ are undoubtedly excreted in the spermatic as well as in other physiologic fluids and that it only remains for us to perfect our experimental technic to demonstrate by laboratory methods the truth of this opinion.

3. The Antigen in the Wassermann Reaction — Fourth Note.

The author emphasizes the following points in the use of his antigen: (1) It should be kept at a temperature of about 15° C. and not in an ice-box. (2) The antigen should be diluted in physiologic saline which has been warmed to about 20° C. Dilution with cold saline causes a precipitation of cholesterine. (3) There should be a preliminary titration in order to determine the amount of complement necessary for the test. (4) Results should be interpreted only after centrifugalization. The colorimetric scale advocated in previous recommendations is recommended.

Desmoulière publishes the formula of his "artificial" antigen:

Pure cholesterin	1 gr.
Solution of 0.5 gr. lecithin in sufficient alcohol to make 100 c.c.	10 c.c.
Solution containing 37 gr. of dry sodium soap in 1000 c.c. of alcohol at 60° C.	3 c.c.
Absolute alcohol q. s. to make	100 c.c.

The cholesterin is added last. Solution is effected by shaking the mixture (kept in an incubator at 37°) from time to time. The above solution is diluted in physiological saline, 1 part of the former to 15 of the latter. The author has made about 150 tests with this "artificial" antigen and has obtained results fully as satisfactory as with antigen prepared from a syphilitic fetus's liver.

4. Late Hereditary Syphilitic Hyperostosis of the Long Bones.

The authors report the case of a young girl of 19, admitted to the Saint-Lazare, who presented interesting bone lesions which they were able to study with the aid of the X-rays. They publish six pictures of the bones of the legs and forearms. The case is especially interesting because it showed at the same time lesions at different stages of development, the evolution of which could be readily followed by means of plates taken at various intervals.

In the right arm there was a recent dia-epiphyseal lesion, a hyperostosis formed by the growth of bridges of new bone as a defense of the periosteum against the medullary irritation. The legs, on the other hand, showed lesions which were already organized, character-

ized by a thickening of the epiphyseal spindle, and a widening of the bone. Finally the fullest development of these lesions was shown in the left forearm where the bone, involved from one end to the other, had almost entirely lost its medullary canal. The compact bony tissue was much hypertrophied but it showed irregularities and was honey-combed like a bee's hive. Its solidity was thus considerably diminished and the danger of spontaneous fracture much increased.

After a month of mercurial treatment the process in the right ulna was arrested, but there was no diminution in the hyperostoses. After another month of (mixed) treatment the hyperostosis of the right ulna had diminished and was no longer painful, there was a very slight improvement in the hyperostoses of the tibias, but the left ulna (a very old lesion) showed no change whatever.

5. Twenty-three New Cases of Death from Salvarsan and Neo-Salvarsan in Six Months.

Burnier has made a careful study of the literature and finds that the great majority of fatalities occurred in young subjects, from 10 to 32 years of age, in robust health and of good physique. Death never results from a single injection but almost always after the second in the case of salvarsan, and after the third or fourth in the case of neo-salvarsan. The dosage was not high. As a rule it did not exceed 0.6 gr. for salvarsan, nor 1.2 to 1.4 gr. for neo-salvarsan. Even with very low doses — 0.3 to 0.4 gr. salvarsan — death has resulted. In most cases the injections were intravenous; in two instances however death followed a second intramuscular injection of 0.35 gr. salvarsan in the first case, and an injection of 0.3 gr. salvarsan into each buttock in the second.

Toxic symptoms were generally the same in every case and were similar to those shown experimentally. Almost immediately after injections there were fever, vomiting, diarrhea, sometimes scarlatiniform eruptions, paralytic phenomena, delirium, convulsions, then the patient fell into coma and died on the third or fourth day. At autopsy there was usually marked hyperemia of the brain and meninges, a hemorrhagic encephalitis, and a congestion of all the viscera.

As causes of these symptoms there has been suggested a faulty method of preparation, impurities in the distilled water, and the Herxheimer reaction. It seems most rational to ascribe these phenomena to an intoxication by the drug itself as the symptoms observed are those of acute arsenic poisoning.

Since it cannot be foretold in which cases salvarsan and neo-salvarsan will show untoward results, and as there is no known means of checking such symptoms, the author cautions the profession to exercise the utmost care in the use of these drugs.

MISCELLANEOUS ABSTRACTS

The Nervous Phenomena of Prostatic Disease and Their Relation to Treatment.

According to Dr. F. X. Dercum (*Therap. Gazette*, Feb. 1913), the nervous phenomena of prostatic and deep urethral disease resolve themselves into two kinds: first, those that are directly dependent upon and are part of the symptom-group of the local disease, and secondly, those which are merely indirect outcomes or sequelae.

Among the first are various associated and referred pains and sensations. They are features added to the purely local symptoms and may be briefly enumerated as follows: Pain in the upper sacral and lumbar region, spreading, it may be, up to the level of the shoulder-blades; painful sensations referred to the groins or diffused over the iliac fossae; pain referred to the testes or to the spermatic cords; pain referred to the thighs; also sensations of pressure referred to the top of the head or diffused widely over the head; finally, though less frequently, actual headache. Occasionally also distressing sensations are referred to the precordia. These features, which in a measure suggest the associated nervous symptoms met with in women with disease of the uterus, are not to be regarded as neurasthenic manifestations but as part and parcel of the symptom-group of the prostatic disease itself. We must remember that the symptoms of neurasthenia are those of chronic nervous fatigue, and constitute, properly speaking, the symptom-group of the "fatigue neurosis." That they differ radically from the nervous phenomena, referred pains and other symptoms, the result of visceral disease, need hardly be pointed out.

As to the mechanism of the symptoms we can readily picture to ourselves how, the spinal centers being directly involved in disease of the sexual apparatus, irritation and exhaustion of these centers may be diffused over the various structures of the cord and perhaps of the sympathetic system, and in this way give rise to the referred sensations of which the patient complains.

Patients with prostatic and deep urethral disease often complain also of difficulty in thinking, difficulty in the performance of mental acts which require concentration, and they commonly manifest a distinct disinclination for mental work. Further, they often complain of disturbed sleep, and sometimes indeed there is a decided insomnia.

Associated with the symptom-group here briefly outlined, we very frequently have secondary symptoms, the indirect out-growths of the local disease, and these are distinctly psychic in character. The psychic picture presented depends largely upon the age of the patient. If the patient be a relatively young man, or one still in the period of full sexual activity, his thoughts assume a distinctly sexual character. Almost involuntarily his thoughts become centered upon his sexual

organs and functions. Not infrequently, as is well known, he reads all sorts of literature, much of it misleading and objectionable, in reference to sexual matters. Further, he quite commonly comes to the physician with statements which show that he has closely studied the appearance of his genitals; he often declares that the latter are becoming smaller, are undergoing atrophy, or present some other, to him, strange peculiarity. Not infrequently also the patient closely observes his urine. If the latter happens to be cloudy with mucus, he declares that it contains spermatic fluid, and a similar interpretation is often placed upon the phenomena when phosphaturia happens to be present. His mental attitude is that of a more or less marked depression. Quite commonly he accuses himself of past sexual abuses, declares that he has lost his sexual power, the blame for which he fixes upon himself. Self-mutilation and even suicide have been known to occur under these circumstances.

When we study the influence of prostatic and deep urethral disease upon young individuals, we should not forget the influence of a neuropathic make-up. There can be no doubt that a previously existing neuropathy greatly influences the resultant mental picture. The greater the neuropathy, the more profound and distressing the mental symptoms.

If instead of being a young man the patient happens to be relatively old or aged at the time that prostatic disease is established, very remarkable mental phenomena may manifest themselves — *i.e.*, there may be a recrudescence of sexual thoughts and feelings. There can be no doubt that some of the cases of old men falling in love and some of the marriages of old men are to be attributed to prostatic disease, often unrecognized and undiscovered. Sexual recrudescence in old age is, of course, always pathological. Now and then we meet with it in senile dementia, and here it appears to be the outcome not only of the mental weakness and the diminished inhibition of old age, but also quite frequently the result of the peripheral irritation of prostatic disease. Here are to be classed also some of the instances of exhibitionism, of rape, and of toying with children by old men.

At times the mental phenomena are of such character as to show that the patient has stepped clearly beyond the bounds of sanity. Among the symptoms are delusions, at times expansive, especially when relating to the physical vigor and health of the patient, but at times and more frequently they are depressive. The patient often believes that he is ill-treated and abused — it may be by his children, who oppose a second marriage. At other times he is toxic from the bladder and prostatic conditions and becomes hallucinatory and confused. That such cases, due in part to the senile mental state and in part to the prostatic disease, not infrequently give rise to serious trouble and unhappiness in families, to the making of improper and unjust wills

and to subsequent contests in the courts, is a story with which many of us are familiar.

Finally the feebleness of resistance — *i.e.*, nervous and psychic vulnerability — of old men to prostatic operations, more especially prostatectomy, is well known. At times and in addition to the symptoms of physical shock with which the surgeon is familiar, there arise mental symptoms. As a rule the latter are not immediate sequelae of the operation, but only supervene after many days or even weeks have elapsed. They manifest themselves in the form of mental confusion. The confusion is not active, but is notwithstanding pronounced; not infrequently there are present auditory and somatic hallucinations, together with fragmentary and unsystematized delusions painful and depressive in character. When once established the condition lasts for weeks, sometimes for months, and is often incorrectly spoken of as a melancholia.

Quite usually lucidity is gradually reestablished, but the patient may remain depressed for a long time with painful ideas, such as poverty and neglect, persisting. It does not differ on the whole from the mental confusion which occurs now and then as a sequel of other operations upon the aged; yet the thought suggests itself that in cases of prostatectomy it is primarily due to the absorption of toxins either from the diseased prostate or from the surfaces exposed by the operation. We should call to mind again that a mental confusion every now and then occurs in old women with fibroid of the uterus, especially when the fibroid is degenerating. In other words, there is here a certain parallelism of symptoms.

A Case of Gonococcal Septicemia.

Dr. A. C. Hendrick, Toronto (*Dom. Med. Monthly*, March, 1913) reports the following case. The patient, aged 26, was referred to him for the care of a slight gleet. He gave a history of infection with the micrococcus of Neisser, one year previously, but was cured (?) in three weeks with injections by a physician who believed in the possibility of rapid and complete cures of gonorrhea. However, the morning drop had persisted ever since.

The patient was at first put on urotropin and methylene blue for a couple of days; then the prostate was gently massaged per rectum, but very little secretion was obtained at the end of the penis. In two days' time the patient returned, complaining of the typical symptoms of an acute attack of gonorrhea. There was a profuse yellowish discharge from the urethra, which, upon microscopic examination, showed a pure culture of the Gram-negative intra-cellular diplococci, and there was no doubt but the case was one of acute gonorrheal urethritis arising from germs massaged from a latent focus in the prostate, as the presence of a recent infection had been excluded. The patient was put on santalwood oil, m. 10 every 6 hrs., and the urotropin continued. He seemed to im-

prove for a couple of days, then became actually ill with general constitutional symptoms characteristic of a general blood infection.

The discharge had practically disappeared, but upon examination the prostate was found somewhat tender and swollen, and there was much irritation at the trigone of the bladder, causing intense pain on micturition.

The vesiculae seminales, vas and epididymis were not involved now or at any time; but to prevent the so-called "reverse currents of the vas" carrying the infection to the epididymis, suppositories of atropine were prescribed, as advised by Schindler and Low.

The patient was ordered to hospital on Oct. 20, 1912, and remained there until Nov. 8, 1912. On entrance, the temperature had reached 104° F.; pulse, 100; respiration, 24.

The condition of the patient not improving, a consultation was held, and it was suggested that the condition might be one of gonococcal pyelitis, complicated by streptococcal infection. Certain symptoms of meningeal irritation also suggested the possibility of a gonococcal meningitis. But the examination of the urine and of the cerebro-spinal fluid revealed nothing to verify it, though certain clinical symptoms, e.g., intense headache, photophobia, and stiffness of the cervical muscles rather suggested some meningeal irritation.

There was also a severe herpes of the face.

The patient was evidently suffering from some generalized infection; in other words, an acute septicemia, in spite of repeated negative blood-cultures and negative Widal's.

Knowing how difficult it is to obtain cultures from the blood, it was considered wise to give the patient sera. Accordingly, 20 c.c. of anti-streptococcic serum was given. There was no very marked reaction, except a slight fall in temperature, and this did not last very long, the effects wearing off in 36 hours. The patient now complained of a pain in the side, which seemed to be an involvement of the pleura, a serous membrane surface, such as the meninges. Here anti-pneumococcic serum was advised and given, 20 c.c. in 150 c.c. of normal saline, intravenously. There was a sudden drop of the temperature and pulse for 12 hours, and then a return of hyperpyrexia as bad as ever.

The physicians were now convinced that neither the streptococcus, nor typhoid, or influenza or pneumococcus were the causative agents, but that this was a case of gonococcal septicemia. The germ certainly had not been isolated from the blood, but there were many clinical manifestations of its toxins in the circulation. Besides, one must remember that it is very probable that certain symptoms are due to the toxins — "gonotoxins" and others to the presence of the germ in the bloodstream, though they must always be present in small numbers, as Cheyne states is the case in any acute septicemia. The germs probably very

soon form metastatic foci, and from these shed their toxins into the blood-stream, e.g., in endocarditis there are probably metastatic foci involving the valvular tissue. The toxins of gonococci especially attack serous membranes; hence the symptoms here of meningitis and pleurisy.

The toxins also attack the central nerve ganglia; therefore the presence of the herpes facialis in this case.

Hence, since there was no tangible focus to be found except that in the prostate, after again giving anti-streptococcic serum 20 c.c. and getting no reaction, it was determined to persevere with the mixed gonococcal vaccine. Accordingly, the patient was given 15 million g.c. in the mixed vaccine. There was a decided reaction, the condition generally improving. Encouraged by this, the dose was repeated, slightly smaller, 10 millions g.c. After this, with the exception of a slight rise in temperature, the improvement was continuous. Another 10 millions was given four days later. The condition improved without interruption, and the patient left the hospital Nov. 8, 1912, feeling quite well.

The fact that the germ was not found in the blood-stream really means very little. Most diseases we now know have the germ present in the blood, provided one takes a sufficient volume of blood, e.g., the typhoid germ is in the blood very early in the infection. In the case of the gonococcus, there are two good reasons for not easily finding it: (1) The large volume of blood required — 2 to 3 c.c. at least; (2) The great difficulty in cultivating the germ *in vitro*.

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THE PATHOGENESIS OF HYDRONEPHROSIS OCCURRING IN CONGENITAL DEFECTS OF THE KIDNEY

By EMILE LAJOSCADE, M.D., Lyons, France.

AN hydronephrosis is due to an obstacle to the free flow of the urine, the latter being situated outside the urinary tract, in its lumen, or in the organs themselves. The various factors producing hydronephrosis in general are too well known to require mention but what will be considered are those peculiar to this lesion arising in kidneys having some congenital anomaly.

It is evident that abnormal kidneys are subject, like normal ones, to lithiasis, and their ureters may be compressed by a neighboring organ or growth. The abnormal renal gland may also, from a trauma, pregnancy or a uterine affection, become mobilized and an intermittent or open hydronephrosis result. An hydronephrosis in a kidney presenting some congenital defect is consequently under the dominance of the causes producing this lesion in normal kidneys, but what I desire to demonstrate is that the renal malformations powerfully contribute to the installation of urinary retention in the renal pelvis.

The congenital cause, which in this case is the renal anomaly, may only exercise its effects late in life or perhaps never, and from this very fact an hydronephrosis having a congenital cause differs from a congenital hydronephrosis present from birth, and is more like the acquired types of the affection. All kidneys presenting malformations or anomalies do not give rise to retention of urine; there are some, perhaps, which are predisposed to it from the nature of their conformation. A certain number of circumstances are necessary, which are far from always presenting themselves. Just as in the case of the persistence of the vagino-peritoneal canal, other causes must come into play, sec-

ondary it is true, but nevertheless necessary, in order to produce the so-called congenital hernia. In the same way, other conditions, often undetermined, must become active in order that a congenital hydronephrosis shall occur in a kidney presenting a malformation. In some cases it is a difficult matter to decide how much should be attributed to the congenitality; these are those in which the hydronephrosis exists at birth but to such a mild degree that it is not perceptible and does not draw the observer's attention because there are no objective or subjective symptoms. Later on, under the influence of undetermined conditions, the lesion passes from the latent state to that of evidence, and it can be readily understood that the condition may be looked on as an acquired one when in reality it is congenital.

And nevertheless, the distinction between true congenital hydronephrosis and hydronephrosis from a congenital cause must be made if a limit is to be made for the congenital type. Otherwise the very important class of hydronephrosis in movable kidneys would be included among them, for it is probable that movable kidney has a congenital origin much oftener than is generally admitted; it is almost always, if not always, accounted for by certain congenital conditions of the perineal tissue or the means of anchoring the kidney.

Hydronephrosis in renal anomalies is almost always due to the particular condition of the kidney, its ureter and blood-vessels; it is consequently of a congenital origin in the same degree as renal mobility, and this congenitality is, in the cases we are considering, far more evident. The mechanism of this type of hydronephrosis will be studied in each of the various anomalies of the kidney.

Hydronephrosis in kidneys in congenital ectopia. The cases of hydronephrosis in kidneys in congenital ectopia are rare; the reason being that these kidneys are solidly fixed in the position they occupy and they do not possess the relative mobility of normal kidneys in their position. Now, the habitual cause of hydronephrosis is mobility of the renal gland. But this immobility of the organ predisposes it to undergo the effects of compression from various tumors arising in the neighboring viscera. The pelvic location of the kidney favors the production of hydronephrosis, in this sense that the initial part of the ureter, from its position, is liable to be pressed against the sacrum. The obstacle to the flow of urine may be due to an obstruction of the

lumen of the ureter by a foreign body, a blood clot or calculus, or by an inflammatory or neoplastic lesion seated in its walls, but these factors of obstruction will not detain us as they are not special to kidneys in congenital ectopia.

A kidney in congenital ectopia occasionally presents other malformations, consisting, for example, in faulty situation, direction of or conformation of the ureter in relation to the shape and site of the kidney itself. In one case a prolapsed kidney lying transversally in the right iliac fossa possessed a ureter which turned around the lower pole, or rather the internal, in order to reach the bladder. It presented, consequently, a bend which I consider congenital, because the patient had never presented any symptoms of movable kidney and the organ was fixed in a region without any evidence of an inflammatory process which could explain the anchoring of a kidney which formerly was movable. The bend in the ureter, according to my view, was the primary factor of the existing hydronephrosis, because when straightened out the permeability of the lumen was recovered. The secondary or accessory cause which rendered the lumen totally impermeable could not be discovered.

But how explain the fact that the symptoms of the hydronephrosis only occurred when the patient had reached the age of nineteen, since the cause had existed since birth? It is probable that this bend was not sufficient to completely cut off the flow of urine, so that it simply produced a slight dilatation of the renal pelvis without any painful phenomena. Under the influence of undetermined conditions, the open hydronephrosis became closed, giving rise to marked symptoms which led, in the first place, to the diagnosis of an acute hydronephrosis. This, however, is the history of many cases.

Although a congenitally prolapsed kidney may be solidly fixed in its abnormal position, it may, from trauma or violent exercise, become mobile. This mobility is here not due to a congenital weakness of the perineal tissues or the means of fixation; it is purely accidental. One of the principal factors of this mobility is unquestionably pregnancy. It can exercise two different actions on the congenitally prolapsed kidney; either it compresses the ureter or it mobilizes the kidney. This mobilization occurs at two periods of pregnancy: at the time the uterus develops and comes up into the abdomen, the pelvic basin being no longer able to contain it; and at the time of labor, if pregnancy has not been interfered with.

The possibility of a congenitally prolapsed kidney gives us the key to a new mechanism of hydronephrosis. This mechanism differs in no way from that of hydronephrosis produced by mobility of the renal gland. The displacement of the kidney downwards determines a bend, sometimes even torsion, of the ureter, but in order that an hydronephrosis results the bend must become fixed.

Urinary retention in prolapse of the kidney of the congenital type is more frequent than in ordinary movable kidney. This is because in the normal state the entire ureter becomes displaced with the kidney, while the ureter in ectopia is fixed and cannot follow the displacement of the renal gland. The bend in the first case will be lax and does not cause retention unless, secondarily, it becomes fixed by adhesions.

It is not necessary for the production of an hydronephrosis for the displacement to be considerable, because slightly movable kidneys, relatively more common in men than in women, are more prone to result in an hydronephrosis than in movable kidney.

The occlusion of the ureter may take place in some cases as follows: the kidney descends, then held by its vascular pedicle, its upper pole is inflected outwardly and its lower pole inwardly; the kidney thus assumes a horizontal position. The ureter forms an arc around the lower part of the renal gland. This condition existed in the case alluded to above but I consider it a congenital condition in this case, and gave my reasons for so believing.

A third manner of displacement of the kidney arises in this way: the organ undergoes rotation around its transverse axis, the lower pole being brought forward, the upper pole backwards.

In kidneys presenting vascular anomalies, which is the case with many ectopic renal glands, this transversal displacement may be the cause of an hydronephrosis. Let us suppose that an arterial branch crosses the initial portion of the ureter behind in order to reach the lower pole; the ureter thus is astride of the vessel and should the kidney become displaced by turning on its transversal axis so that its lower pole is directed forwards, the vessel, following the movement of the kidney, will compress the ureter and obstruct its lumen if the pressure is sufficiently marked and maintained. Such an hydronephrosis may be either closed, open or intermittent. In a case under the care of Prof. Bérard, the ureter was totally obstructed at its neck and the renal displacement appeared to be the cause of the hydronephrosis. The

patient noticed a mobile, painless tumor in the left iliac fossa after her labor, which was easily made out to be the kidney.

It is quite possible that the hydronephrosis remained open for a long time which explains the absence of urinary paroxysms and the long lapse of time between the time of the displacement and the appearance of the tumor, which was manifested at the same time as the painful attack. We decided that the date of this attack was the commencement of total occlusion of the ureter, because the tumor has remained present and has progressively increased in size.

Vascular Anomalies. Compression of the ureter by a blood-vessel is just as important in the production of an hydronephrosis as is a fibrous band. The vascular anomaly causes outside pressure, as do organs in normal relationship with the kidney. Usually, the abnormal branch of the renal artery passes in front of, or behind the ureter and compresses it. More frequently a sharp bend is produced but for this to occur the vessel must have an abnormal position and course.

When the kidney is supplied by vessels following the classical relationship to the ureter it would be practically impossible for the ureter to be compressed by them, even when there is a marked displacement of the renal gland, but an abnormal position of a vessel may produce compression, even from the very beginning of life, so that an hydronephrosis results. The anomalous vessel compresses the ureter at each systole, finally causing a mild degree of irritation at the point where the vessel crosses the tube, and this is followed by a ureteritis or a peri-ureteritis, the consequence being a transformation of an open hydronephrosis into a closed one.

The vascular anomaly is not necessarily the primary cause of the hydronephrosis; in some instances it only intervenes by keeping up an already developed process. The particular anomalous arrangement of a vessel may make the ureteral bend permanent and may result in an accidental or spontaneous displacement of the kidney. This fixity is the factor in play in the production of hydronephrosis in movable kidney. It has been upheld that the part played by the blood-vessels in hydronephrosis is always a passive one, and it is quite true that often their compressive action only takes place when the renal pelvis has reached some size, changing an open hydronephrosis into a closed one, but it is equally evident that the production of an hydronephro-

sis can be attributed to an existing vascular anomaly when no other etiological factor can be discovered.

Hydronephrosis in horse-shoe and single kidneys. The particular anatomical disposal of the renal pelvis and ureter in horse-shoe kidneys seems to predispose the organ to urinary retention. Nothing favors a bend of the ureter more than a horse-shoe kidney; as the concave aspect of the organ looks upward, the ureter coming from the renal pelvis is obliged to describe a semi-arc with a short radius in front of the kidney. This arc may become bent and it is even astonishing that retention of urine in the renal pelvis in these cases is not more frequent.

The causes which are capable of causing hydronephrosis in this renal defect are the same as those in the case of normal kidneys, but it is readily conceived that here they no longer play a principal part, because the congenital bend of the ureter in front of the intermediary portion of the horse-shoe kidney is the foremost factor.

The usual arrangement of the horse-shoe kidney in front of the spine will facilitate ureteral compression because the tube cannot escape, it being adherent to a resisting bony plane. It is subjected to the effects of increased intra-abdominal pressure caused by pelvic or abdominal tumors.

Every case of horse-shoe kidney does not develop urinary retention in its pelvis and this might lead to the supposition that the bent ureter is not in itself sufficient to stop the flow of urine. The defective conformation of the kidney and ureter in these cases is alone sufficient to produce an hydronephrosis, when this condition is met with, without the aid of any other circumstance. Such for example is Hauser's case, where the dilatation involved both renal pelves, and although the hydronephrosis was bilateral it was compatible with life because it remained open.

Besides this primordial cause of urinary retention in horse-shoe kidneys, other factors come into play. The lumen of the ureter may be occluded by another mechanism described by Baudoin in cases of hydronephrosis in movable kidney, in which one frequently observes a change from an intermittent to a closed hydronephrosis. The flow of urine is difficult through a ureter presenting a congenital bend as in horse-shoe kidneys, so that the walls of the renal pelvis slightly distend, giving rise to a mild type of hydronephrosis which empties itself easily under the ten-

sion existing in the renal pelvis. Under the influence of this slight tension, a sort of chronic irritation of the connective tissue structures of the walls of the renal pelvis arises and a thickening of this reservoir results, along with the appearance of connective tissue bands and fibrous tracts at the level of the arc described by the ureter. These prevent the ureter from straightening out, while the passage of the urine will become more and more difficult and finally impossible, because the fibrous tracts, lax and extensible in the beginning, which surround the ureter and unite it to the isthmus of the kidney, become retracted and tightly embrace this portion of the ureter, which is already congenitally flattened and strictured. The walls of the ureter strongly pressed together form an impassable barrier to the flow of urine and a closed hydronephrosis is the result.

I am certain that the majority of hydronephroses in horse-shoe kidneys are open or intermittent before becoming closed, as is evident from two cases which have been recorded. In that of Socin, if the symptoms are carefully followed it is at once seen that the hydronephrosis was first intermittent, only making itself manifest by paroxysms of pain occurring every month, the sac being still too small to be palpated; and this was the beginning of the lesion. Three years after the beginning of the violent periodical colics the patient noticed a tumor in the right side of the abdomen low down, and at the same time the painful paroxysms became less frequent and severe. The important fact was noted that they disappeared at the same time as the tumor after a few hours' rest in bed. This state lasted twenty-five years, and during this long period the hydronephrosis was intermittent. The explanation of the decrease of pain is to be found in the greater extensibility of the sac accustomed to pressure, before which it gave way more easily than at the beginning of the retention. In fact, it is proven that the crises are more painful during the first period of the hydronephrosis, because the pain is due to distension of the renal parenchyma.

Without any motive, the painful paroxysms which had almost entirely disappeared, became again just as sharp and frequent as in the beginning of the affection, giving rise to vomiting. Their duration was long, sometimes even nine days; they became subintractant and the tumor no longer disappeared. The explanation of all this was that the intermittent hydronephrosis was undergoing a transformation into a closed one, the pain being

undoubtedly due to an enormous distension of the renal pelvis by the urine, which usually when a certain amount of tension is reached overcomes the obstacle which as yet has not become impassable but finally becomes so from the irritation or an inflammatory process.

The special conformation of the ureter in horse-shoe kidney does not confer immunity against hydronephrosis due to an obstacle seated in the lumen of the ureter. Quite the contrary, it is evident that a foreign body (a calculus or blood-clot) will be readily arrested at the level of the angle present in the ureter. In cases of inflammation of the ureter, be it tuberculosis or some other form, in the case of a ureteral neoplasm, the lumen will not be long in becoming obstructed at its narrowest point, namely, at the level of the congenital angle.

Hydronephroses consecutive to a movable horse-shoe kidney must be very rare, if they occur at all. These kidneys are fixed in their position and the multiplicity of their blood-vessels contributes to maintain them solidly *in situ*. Thus trauma, exercise, etc., dislocate them with difficulty.

The same cannot be said of pregnancy; particularly when the horse-shoe kidney is situated on the promontory, it partially obstructs the sacro-iliac sinuses and is a very serious factor in the production of dystocia. The engagement of the head, if it is of normal size, takes place with difficulty and the labor will oblige so much effort that the physician may be forced to interfere. The forehead or occiput will drive against one of the lateral portions of the kidney and mobilize it and this will have as an effect to increase or lessen the radius of the arc described by the ureter. If it is diminished the obstacle to the passage of the urine is increased and an hydronephrosis is started.

I shall say nothing relative to the pathogenesis of hydronephrosis in a single kidney, because it must be similar to that occurring ordinarily, but I will remark that when only one ureter exists an hydronephrosis is not compatible with life, even when it is open, because the diseased kidney cannot suffice to eliminate the extractive principles of the urine from the blood for any length of time.

HOW TO DEAL WITH THE PROBLEM OF PROSTITUTION *

By WILLIAM J. ROBINSON, M. D., New York.

TO be able to deal effectively with an evil we must know its history, its causes, the attempts made to regulate or to abolish it and how far these attempts proved successful or unsuccessful. To regard the social evil as if it were something new, of recent origin, as some of our would-be reformers seem to think it is, shows the ignorance of the reformers; and their attempts at reforming it spell failure in advance.

It should not be necessary to state it, but in view of the ignorance of many of our reformers, it is necessary to state that prostitution is one of the very oldest institutions on the globe. It is coeval with the very first beginnings of civilization. As soon as indiscriminate promiscuity began to give way to a more or less distinct marriage system prostitution made its appearance. And to look for the origin of prostitution exclusively in economic conditions, as some people are doing, is wrong and we will see later that it is an error. Economic conditions played, and do play, an important rôle but not the only rôle, and not even the chief rôle. As to the various vices and perversions which accompany prostitution, and which some good people think are of recent origin and are therefore duly horrified because they fear that they are going inevitably to lead to the degeneration and destruction of the human race, I can assure you that they also are of most ancient origin. They have been practiced in the dimmest past. The student of ancient history — I do not mean the history which is taught in schools, but the real history which you can get only from original sources and from a study of the literature and art of the times — knows that there is not a single perversion, a single vice practiced at the present time, that there is not an obscene instrument or picture or any device used at the present to stimulate the passions, which were not practiced and used in the most ancient times by the Egyptians, Babylonians, Greeks and Romans. In fact, if this is any consolation to you, I will tell you that the ancients were past masters in these arts and that we are but poor imitators. Perhaps it is because we have so many other things to occupy our minds, but whatever the cause is the fact

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remains as I have stated it. Go through the cabinets of secret objects in the Museum of Naples, which are not shown to the public in general and to women not at all, being reserved for the élite of the masculine sex. Study the ruins of the brothels in Pompeii. Ask the guide to show you some of the secret things which are not shown to the general public, and you will see that what I say is strictly true. And they made no secret of these things either. The houses of prostitution had inscriptions on them which lured the passerby, as for instance: "Here, stranger, is the place of joy." And they also had an erect phallus in front of them, which can still be seen in front of the houses. And we have numerous pictures and instruments left to us, showing that such perversions as pederasty and bestiality were quite frequent, and that every sort of "refinement" was well known to our ancestors. And many of the vices of the ancient times were immortally satirized by Juvenal, Martial and others.

So much for the ancient origin of the evil. And still humanity has not gone to the dogs and has not been destroyed. Somebody may interpellate here that ancient Rome did go to the dogs on account of its debauchery, but this fable of the downfall of Rome on account of its sexual immorality has been long ago exploded. Rome's downfall was due to economic and political conditions and not to sexual immorality.

Have any attempts been made before to abolish prostitution? Since the establishment of Christianity it is hardly possible to find a period in which attempts to abolish prostitution were not made. The attempts were cruel, brutal, merciless sometimes — and they remained without effect. One can hardly think of a torture or indignity that was not perpetrated upon the unfortunate women at some time or another in the attempt to stamp out prostitution, but all without the slightest result except perhaps to change the place of abode of the prostitutes or to make them hide for a while.

At different times and in different places the punishments were of different character. They were made to wear special clothes which publicly announced their prostitution, they were exiled, they were branded with irons, they were publicly flogged and deprived of their clothes, they were ducked and put in the pillory, they were made to work at hard labor — but all, of course, to no effect. Here, for instance, is a punishment that was meted out to one of the "free" women of Toulouse. She was taken to the

town hall, was stripped naked, her hands were tied behind her back, a cap in the form of a sugar loaf and ornamented with feathers was placed upon her head, a jeering inscription was placed upon her back, and she was taken out to the middle of the river, where she was made to enter a cage which was then plunged into the water three times. After that she was taken to prison, where she was made to work at hard labor the rest of her life. And still these horrible punishments did not act as a deterrent.

Not only the prostitutes themselves but the keepers of the houses of ill fame, procurers and cadets and pimps, were also severely punished. For instance, men keepers of disreputable houses were forced to carry the prostitutes on their shoulders to the public whipping-place, where the women were flogged. If the men refused to carry the women they were taken to the whipping-place and flogged also. It was considered the greatest possible disgrace and humiliation to have to carry a prostitute on one's shoulders, and still that did not keep men from running the risk. Prostitution went on unabated and kept on growing. Procureesses were mounted on donkeys with their faces towards the tails, placarded with suitable inscriptions and paraded through the streets. They were then publicly whipped and afterwards put to prison or exiled. In addition to this, their hair was sometimes burned off and their property confiscated. In some places the procureesses were punished with the same punishment inflicted on *adulteresses*, namely they had their noses cut off. Pimps and cadets were taken to a public place, branded with a red hot iron, their ears cut off or mutilated, and they were then put in the pillory. Once in a while they also had a foot cut off. It would be a good thing if this same punishment were meted out to these wretches of the present day. And nevertheless prostitution went on unabated, diminishing in some places but increasing in others, depending on economic and social conditions.

But not only were punishments inflicted on the prostitutes, they were also grafted upon in the most shameless, outrageous manner, and if you think that the police graft and other kinds of graft extorted from these unfortunate women is something new you are again mistaken. In many places there was a definite tax levied upon the prostitutes and they had to pay promptly or they were severely punished. And not only did the municipal authorities exact a portion of their earnings, the church and the

convent demanded their share. The church never believed that money ever had an odor, and it did not care from what source it got its money as long as it got it. In Rome at one time every prostitute was compelled to assign one-half of her savings and her property to a convent. This was in addition to the heavy tax which the houses of prostitution had to pay to the municipal authorities.

In short, the life of the prostitute has always been made very hard, very bitter, and still she kept on existing. This, it seems to me, should give our would-be reformers some food for thought. If an occupation which is the bitterest, most humiliating, most disgraced, most ostracized in the world, whose financial emoluments are miserably meager, and whose hazards are the greatest in the world — consisting in frequent painful and loathsome disease and early death — has survived for all these centuries in spite of all efforts to exterminate it, then there must be some deep reason for its existence, much deeper reasons than our theologians and amateur reformers are capable of conceiving.

And if men from time immemorial have patronized this institution in spite of the, to them, real fear of eternal damnation, in spite of the spectre of burning in hell for centuries and centuries, in spite of fear of venereal infection, of exposure, of social disgrace and ostracism, in spite of very real moral scruples, in spite even of their disgust; if men even risked their entire future, their career, and as it not infrequently happens their very lives, to satisfy their instinct — then the underlying cause must be something more than mere viciousness or immorality, as our amateur reformers want to make us believe. A person does not risk his health, his career, and his life merely because he is immoral or vicious. He may risk these things to acquire riches and power, but not to destroy himself. If he does do it, then it means that there is some strong impelling force which he cannot resist.

Having indicated the ancient origin of the evil and the complete failure of all attempts to abolish it, let us now briefly consider the causes of it. And as in order to cure a disease or a bad social condition we must know its cause, so in considering the causes we will also see what remedies are likely to be efficient and what remedies are likely to fail.

Practically all those who have written on the social evil have given poverty as one of the principal causes which force

girls into prostitution. If by poverty is meant the actual lack of physical necessities, hunger and lack of shelter, then I must disagree. The number of women forced into prostitution by actual starvation, by lack of a home, is relatively quite small, perhaps insignificantly small as compared with other causes. It is sufficient to mention the fact, well known to every student of the social evil, that a large number of prostitutes are recruited from servant girls, who have a home, and a fairly good home very often, and who receive wages anywhere between \$20 and \$50 a month, so of poverty and starvation there can be no question here. But if by poverty we understand our general economic conditions, beginning with bad bringing up of the children, with the huddling together of the sexes, bad examples, lack of comfort, lack of companionship and pleasure of any kind, etc., then the factor is a very important one.

And the statement generally made that the poorer a country the more prostitution it has is also untrue. When it comes to actual famines, then a larger percentage of very poor from the peasantry and the working classes may be driven into it, but it does not increase the number of prostitutes of the better class. On the contrary it has been shown in Germany and in Denmark that with the improvement in the economic conditions, with the increase of wealth and luxury, the amount of prostitution kept on increasing *pari passu*; and it is not so difficult to understand the reason. Where the country is poor the reward for prostitution is meager and the inducement to enter it is not so great, but when the country is prosperous and the men have more money to spend and can afford to give a woman nice clothes, jewelry and champagne, the inducement is often irresistible.

There are certain investigators who, in a commendable spirit of chivalry, absolve the woman from all guilt, throwing the entire guilt upon the men. They say that if there were no demand there would be no supply. Dr. Prince A. Morrow says that, "if every prostitute now living were swept out of existence it would only act as a temporary check to the social evil and to the spread of venereal disease." That is, the demand upon the part of the wicked men continuing, new prostitutes would soon be recruited from among the working girls, sales-girls and so on. And going further, they say that the reason why there is such a strong demand is because, the economic struggle becoming more accentuated, men are unable to marry at a sufficiently early age and therefore

have recourse to prostitutes. I regret to say that with this point also I must disagree. For bachelors are not the only patrons of prostitutes. The more respectable houses, the clandestine prostitutes, etc., have more patronage from married men than from bachelors. There are houses whose mistresses claim that but for the patronage of married men they would have to close up.

Some give lack of religious training as one of the causes of prostitution. On this point we need not waste much time. It is well known that no class in the community is more religious and more superstitious than are the prostitutes. This is also true of all classes of criminals. And it is in the most religious countries that prostitution is most widespread.

Some reformers claim that an important cause of prostitution is the ignorance of young men of the dangers that lurk in illicit intercourse. They believe, or they claim to believe, that most of our young men are unaware of the existence of gonorrhea and syphilis, and that if they were only instructed as to the existence of these diseases and as to their terrible dangers they would abstain. This, I regret to say, is not so. In a small percentage of cases the fear of venereal infection does act as a deterrent, but only in a small percentage. Medical students and physicians, who are fully conversant with the dangers of venereal infection, nevertheless do expose themselves and do contract venereal diseases. I venture to say that there is as much venereal disease among medical students and physicians as in any other class of the community. I certainly have a very large number of both medical students and physicians to treat. I have one day in the week on which I treat none but medical students and physicians.

No, the real cause of prostitution may be expressed in one brief paragraph: It is due to the presence of a powerful instinct called the sex instinct which nature foolishly or maliciously implanted in men and women and the satisfaction of which is beset with difficulties on account of our system of morality and our present economic conditions.

This is my belief, and this being my belief, it naturally follows that in my opinion the abolition of prostitution can only be accomplished with the change of our system of morality and our economic conditions. *But this is a matter of the future.* A change in our ideas of sex ethics and a radical change in our

economic conditions cannot be expected before a century or two. *What are we to do to-day?* the question is. We have a certain institution, prostitution, which is universally declared a social evil (though its evil effects are rather exaggerated — but this is in parentheses), and we want to remedy it. What can we do now, to-day?

If we study the social evil calmly, dispassionately, without the bias of the theologian or the hysteria of the amateur reformer, we will see that the real great menace of prostitution is the scourge of venereal disease. Eliminate the danger of venereal infection absolutely, and prostitution simply becomes a rather coarse, unsatisfactory substitute for normal sexual relations.

The venereal menace is the real one. While even that has been exaggerated — some of our reformers can hardly discuss this question without exaggerating and perverting things — it does nevertheless sap the vitality of the nation and pollute its blood stream. It is a danger not only to the present generation, as is typhoid fever or pneumonia, but it is a danger to the generations to come; and no efforts can be too great, no expense too large, no endeavors too painstaking to abolish or minimize the evil. And in order to abolish or minimize venereal disease, the chief source of which is prostitution, we must be able to control the source.

My ideas on the regulation of prostitution I have expressed before, and I have not a word to subtract from or to add to what I have said. The reforms necessary to control the source are as follows:

1st. The first requirement, and a requirement that is a *sine qua non*, is REGISTRATION. Every prostitute should be registered and licensed. Prostitution is a business or a trade that deeply affects the health of the people and we have a right to regulate all trades which affect our health as we have the right to supervise all sanitary problems.

2nd. HYGIENIC INSTRUCTION. After a prostitute has been registered and licensed, she should be given instruction in sexual hygiene. She should be warned of the dangers of venereal infection, instructed in the course, symptomatology and superficial diagnosis of the three venereal diseases and their terrible effect on health and life, and she should be shown how to guard herself against infection. Incidentally she should also be taught how to guard against impregnation, for our remedies for the prevention

of conception are now pretty sure and certain, and society certainly does not care to have its prostitutes bear children. All this can be done in an hour's talk, or a suitable pamphlet can be prepared for the purpose. The methods and remedies for the prevention of infection are so simple that it is absurd to think for a moment that any prostitute would not use them if told *how*. It is to her own interest. She certainly does not want to suffer the pain and disfigurement caused by gonorrhea and syphilis. She certainly does not want to be deprived for several weeks of the means of making a living, she certainly does not want to be imprisoned in a lock hospital for several weeks or months. In short, her "career," her livelihood depends upon her being healthy.

3d. **INSPECTION.** The prostitute should have to undergo a medical examination twice a week (but at least once a week), at the hands of competent and highminded physicians, fully conscious of their delicate task and heavy responsibility. I should prefer female physicians for this purpose.

4th. **VENEREAL HOSPITAL.** A venereal hospital is a logical corollary of medical inspection. If disease or suspicion of disease is discovered, the prostitute should at once be rendered harmless. Rendered harmless by being conveyed to a hospital and kept there until every possibility of infection on her part has been removed; whether it takes weeks or months is immaterial. But the hospital should have nothing of the prison atmosphere about it. The prostitutes should not be treated like criminals or prisoners. They should be treated with the same delicacy, care and scrupulousness that we treat patients suffering from typhoid fever or pneumonia. The prostitutes are the victims of our social system, their lot is miserable enough and we should not make it more wretched than it is.

And altogether, whether in the hospital or out of the hospital, the prostitute should be treated like any other human being. As long as she behaves herself and is not diseased, she should feel that nobody has any right to harass or annoy her, and that she has no more to fear from any grafting policeman or crafty politician than has any respectable woman.

5th. Last but not least, is the **INSTRUCTION OF THE YOUNG MAN IN SEXUAL HYGIENE.** And by instruction I mean not only teaching him the necessity of constantly occupying the mind and body in order to avoid or to be able to overcome sexual desire; I

mean not only teaching him the dangers of infection; I mean not only teaching him the course, symptomatology and superficial diagnosis of venereal disease; I mean not only impressing upon him the pernicious effect of alcohol as the greatest enemy to sexual continence and the greatest factor in venereal infection; I mean also teaching him plainly and frankly how to prevent infection, telling him what the best venereal prophylactics are and how to obtain them. This measure alone will in two decades do more towards limiting and eventually stamping out venereal disease, with all its misery, with all its sickness and mortality, with its insanity, with its invalided disfigured and desexualized women, blinded, deformed and still-born children, than all our chastity preaching has done in two thousand years.

The venereal peril, as stated, is by far the principal menace of prostitution. Another menace is the premature awakening of the sexual instinct in, or I might call it seduction of, young boys. Where prostitutes are permitted all over the city and do their soliciting openly they exert an undoubtedly pernicious influence on young boys. Many boys have their sexual instincts awakened, and are drawn into the patronage of prostitutes, several years earlier than they otherwise would be. A strictly segregated district would do away with this evil, for only those who deliberately wished to go there would go there.

A third evil of prostitution is the graft which it promotes. On account of its illegal nature it creates a whole system of police grafters, pimps, etc. Make prostitution perfectly legal, as legal as any trade is, let the prostitute know that as long as she is decent and decorous and behaves herself she is as secure from attacks, from arrests and persecution, as any other member of the community is, and you put an axe at the very root of police graft and corruption and pimpdom.

As to the reformers who go about with brass bands closing up resorts in the more or less segregated districts, they deserve but the contempt of clear-thinking people, and they would be execrated by the community if the community were aware of the evil they were doing. They simply scatter the inmates throughout the city. Instead of one focus of prostitution they plant numerous foci throughout the city, which has a powerful effect in getting new recruits into the army of prostitution. They make the practice of prostitution more difficult, consequently more clandestine, and consequently more disease-spreading.

Those who say that segregation, regulation, and medical inspection do not diminish the venereal peril have not studied the subject carefully. Everybody who has given the subject a careful, unbiased study knows that there is much less danger of infection in well regulated prostitution houses, or from registered prostitutes living by themselves, than from clandestine prostitution, or even from non-prostitute but accommodating young ladies to be found among the ranks of chorus girls, sales-girls, stenographers, etc. The reason is easy to understand. The prostitute's livelihood depends on her good health, and if she is only instructed in how to take care of herself, and has the facilities at hand, she will certainly use them. In the segregated district of Bremen, where every prostitute must have at least two rooms to herself, and must be in possession of various sanitary appliances, douches and antiseptics, there is very little venereal infection.

If the stigma of criminality were taken away from prostitution it would cease to be the menace it is.

To those who may think that the remedies I suggest while effective are perhaps utopian, I will say that they are mistaken. They are not at all utopian, they are perfectly practical; and the proof that they are practical is that they have been applied in a number of European cities, such as Bremen and Hamburg (and for the last two years also in San Francisco), with very excellent results. And there is no reason why what has been done in one civilized city cannot be done in another. All we need is to create a decent public opinion on the subject, and to have broad-minded officials, and the thing can be done. All we have to do now is to awaken the public conscience and the public brain to the fact that a dangerous trade that cannot be abolished must at least be surrounded with all possible safeguards, so that the evils resulting from it may be reduced to a minimum.

If by my propaganda I shall have contributed in some slight degree to the establishment of a saner attitude towards the social evil, I shall be amply rewarded for all the time and labor that I have spent on it, and for all the disagreeable epithets that have been hurled at me by many good people and by very many people not so good.

SEXUAL IMPOTENCY IN THE MALE

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AUTHORIZED TRANSLATION. EDITED WITH NOTES AND ADDITIONS BY
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[Continued from the May issue.]

CHAPTER XX—THE PATHOGENESIS OF POLLUTIONS

THE seminal losses hitherto considered; namely nocturnal, diurnal, and atonic pollutions, are to be explained by spasmodic contractions of the seminal vesicles, the prostate, and the vasa deferentia. They represent a motor neurosis with spasm of the seminal vesicles (Ultzmann).

At first intended coitus or by erotic conceptions too quick an ejaculation of the semen is occasioned by these spastic conditions. In proportion as the weakness of the motor functions of the genital organs increases, changes in the semen itself occur, which increases in amount and becomes more watery. This change in the seminal fluid produces the condition of so-called polyspermia (excessive semen) and hydrospermia (watery semen). The latter can attain such a degree in the further course of the disease that one can properly speak of a spermatic diabetes.

The irritative weakness of the genital reflex centers has led to such an extreme sensitiveness and lack of resistance in them that contractions of the seminal vesicles and the prostate arise after hardly recognizable causes, which produce evacuations of a copious watery fluid. The general phenomena which accompany irritative weakness of the genitals—cachexia as well as very abundant and frequent seminal emission—and finally its watery nature justify the nomenclature: **DIABETES SPERMATICUS.**

Before we leave the subject of spastic seminal emissions and go over to the atonic forms of spermatorrhea, we have another phenomenon of abnormal evacuations of semen to consider, which represents a transition between these two basic types;

namely, pollution-spermaturia. Just as there are cases in which in coitus, for certain reasons (see the chapter on Aspermatisms for details), the semen is not emptied outside, but regurgitates toward the bladder; so there are also cases of involuntary emissions, which are accompanied by erotic dreams and the feelings of erection and ejaculation, but where the ejaculated fluid takes the path toward the bladder. The ejaculated semen first comes to light with the next act of micturition, usually at the beginning and end of urination (initial and terminal spermaturia).

These cases of regurgitation of the semen into the bladder *are not to be confused* with the condition commonly called micturition-spermatorrhea, which we prefer to designate, in contrast to the spastic losses of semen or pollutions, as atonic, paralytic emissions of semen.

We always have to do in these cases with a motor insufficiency or a deficient innervation of the vasa deferentia, the seminal vesicles, and the prostate.

In this pathologic condition the seminal fluid may leave the receptacle seminis under certain conditions, which have no connection with sexual desire. These losses of semen have for a long time been designated "SPERMATORRHEA." The chief groups are those accompanying defecation and accompanying micturition.

The general public very mistakenly regards any loss of seminal fluid outside of coitus as a severe degree of sexual weakness.

The diagnosis of spermatorrhea is considered by most of our neurasthenic patients as an infallible sign of incurable impotence.

They have learned from their bad advisers—ignorant doctors and popular quack sexual literature—that masturbation must always lead to impotence, spermatorrhea and tabes. These fears of most of our patients are quite unjustified, for our experience teaches that we are almost always able, by appropriate psychic and local treatment and by regulating the sexual hygiene, to definitely remove the fundamental cause, abuse, and all its consequences, such as spermatorrhea, impotence, etc.

We have yet to see a true spermatorrhea—that is an uninterrupted dropping of semen from the urethra,—which was described by some authors (Tissot, Deslandes, Lallemand) as a sign of sexual neurosis.

Fürbringer described this condition as secondary to a severe spinal lesion and as a temporary symptom in severe myelitis; he also saw it once in a hysterical neurasthenic during some investigations. (See *Die Störungen der Geschlechtsfunktionen des Mannes*, Vienna, 1893.)

The clinical forms of atonic seminal loss for us to consider are the SPERMATORRHEA OF DEFECATION AND OF MICTURITION.

And supplementary thereto we shall have to consider URETHRORRHEA EX-LIBIDINE, which is often wrongly confused with spermatorrhea.

The patients usually make the following statements concerning their seminal flow: After each evacuation of the bowels, especially with straining, larger or smaller amounts of semen-like fluid escape from the urethra, occasionally also at the close of urination. The fluid is sticky, tenacious, and interspersed with jelly-like masses, and lies in the voided urine as a flocculent, gelatinous mass on the bottom of the vessel.

This functional defecation and urination spermatorrhea (really prostatorrhea), which can also occur in healthy persons from exaggerated straining during defecation, must be distinguished from these habitual pathologic states.

Through the energetic action of the perineal muscles and perhaps also through the direct pressure of the hard column of fæces upon the full seminal vesicles and the prostate, and finally by a contraction of the seminal vesicles taking place consensually with the expulsive muscles, there are voided also in the healthy man a few drops of a fluid smelling like semen, which proves under the microscope to be semen or pure prostatic secretion.

This “physiologic” spermatorrhea, this loss of glandular secretion, produces in a healthy man no particular disturbance of health and no local troubles. But to the sexual neurasthenic such loss of semen denotes much more; it is to him a severe pathologic symptom; the frequent seminal losses furnish him ever fresh material for his hypochondriac ideas, and, moreover,

the loss of body fluids really does weaken him to a considerable degree, especially when large amounts of semen are lost at the end of each micturition.

It is a constant complaint of these patients, that after each bowel movement, often indeed after each urination, they feel extremely tired and faint, sometimes they suffer a torturing cerebral pressure for a moment, or neuralgic pains in the testes and violent lancinating pains in the legs. All these symptoms disconcert the patient greatly.

If one examines microscopically the secretion in these cases, one finds that in about half the cases it is merely a prostatic secretion, in the other half it comes from the seminal vesicles and contains perhaps fully developed spermatozoa. If the spermatic fluid represents a proper mixture of the contents of the seminal vesicles and the prostate, the spermatozoa are found in abundant, normal number, and in very lively motion. In emissions from the seminal vesicles alone one sees no active movements of the spermatozoa. And in exclusively prostatic spermatorrhea the fluid excreted consists of a weakly alkaline, slightly cloudy watery secretion, which shows under the microscope only the well-known lecithin corpuscles, cylindrical epithelium, and the spindle-shaped crystals of Böttcher. Spermatozoa are of course absent.

In spermatorrhea of some duration changes are regularly noticeable in the spermatozoa, which are contained in the evacuated fluid. The spermatic fluid becomes gradually poorer in spermatozoa, when such true seminal losses occur countless times daily from complete atony of the vasa deferentia, and immature, misshaped spermatozoa appear, the number of which diminishes as the seminal discharges become more frequent. A condition results, in the severest forms of sexual neurasthenia with spermatorrhea, in which the fluid, although it certainly comes from the seminal vesicles rather than the prostate, does not contain a single sperm-cell—Azoospermatorrhea.

We should carefully distinguish from these cases of genuine spermatorrhea and prostatorrhea another kind of urethral discharge, which is often particularly abundant among sexual neurasthenics, and is often misconstrued by them and their physicians [and which is discussed in the next chapter].

[Urethral flow from sexual desire]

WE have to consider here URETHRORRHEA OR UROBHEA ex libidine, although it is not properly a component part of spermatorrhea. Nervous men, especially those who suffer habitually from the fear of injurious consequences of youthful masturbation, become extremely anxious if they perceive during a strong erection a few drops of a mucous, clear, tenacious fluid at the external orifice of the urethra. Some patients consider this event a loss of semen, a pollution, while other especially hypochondriacal men become firmly convinced that they have gonorrhea. Whereas as a matter of fact it is a condition that often occurs in complete health.

As a result of the hyperemia of the sexual organs from sexual excitement the urethral glands show an increased activity in secretion. The glands of the pendulous portion of the urethra—the glands of Cowper, Morgagni, and Littre—are especially concerned, and their secretion, being unhindered by the muscular valve of the posterior urethra, can escape at the orifice of the urethra. The microscope shows that this secretion consists of mucus and epithelial cells, and that spermatozooids and the characteristic constituents of the prostatic secretion are absent.

It is extremely difficult to convince the patient of the harmlessness of this discharge. The idea of an unlucky seminal flow is so firmly embedded in his brain, that on perceiving this urethral flow erection is inhibited at once by psychic impulses. In this way the sufferers become psychically impotent.

The specter of spermatorrhea is most difficult to exorcise in those patients, who have incomplete erections under sexual excitement, and then at the moment of sensual excitation pass a few drops of this ominous secretion. It has been proved in many cases, that just this appearance of an urethral discharge with deficient erection has caused the severest forms of psychic impotence.

Although this secretion may also be observed under normal conditions, it does appear among sexual neurasthenics in larger amount and has an altered, more watery character. The

chronic hyperemia of the urethra, which we find quite regularly in masturbators, favors the production of larger amounts of this secretion. This urethral flow from sexual desire is also a rather constant feature in the neuroses which develop as sequelæ of gonorrhea. In the latter case it is quite intelligible that the chronic hyperemia remaining after the subsidence of the acute inflammation of the mucous membrane should stimulate the urethral glands to secretion.

If a chronic inflammation persists in a case of chronic gonorrheal urethritis, the urethral flow becomes changed in character, being cloudy, milky, or in many cases of a yellow color.

The microscope then shows, besides the constituents already mentioned of the usual urethral secretion, also leucocytes, pus corpuscles, and a large number of bacteria (bacteriuria).

We see in the different kinds of spermatorrhea, beside the local genital derangements, a series of general phenomena, concerning which we must now speak. The general symptoms are headache, giddiness, sleeplessness, rapid emaciation, alarming appearances, which often forms a contrast to the well-preserved appetite. The eyes seem to be surrounded by dark rings, they are easily tired, as are all the body muscles, especially those of the head and the lower limbs.

We must regard as CEREBRAL symptoms the above-mentioned headache in the forehead and occiput, migraine, swimming of objects before the eyes (migraine ophthalmique), weakness of memory, etc.

Much was said in the older works on spermatorrhea of its relations to paralytic dementia, to tabes dorsalis, and to mental diseases. We will not discuss how much of this is to be ascribed to the confusing of cause and effect; we can at any rate assume that in predisposed individuals (lues and alcoholism) spermatorrhea favors the development of various affections of the brain and spinal cord.

Very characteristic symptoms often occur in our patients in the visceral system. We observe two forms of disorders of the stomach and intestines.

The appetite does not suffer in the lighter forms of involuntary seminal losses; on the contrary there is often a true bulimia; in the great majority of cases of advanced neurasthenia, however, there are rather severe disturbances of the intestines. Obstinate constipation, alternating occasionally with diarrhea, characterize these disorders.

In the severe forms of spermatorrhea these disturbances of the stomach and bowels cause severe effects upon the general health. Patients, who have suffered with severe spermatorrhea for years, often complain of lack of appetite, nausea, eructation, vomiting, and severe intestinal trouble; namely, obstinate attacks of constipation followed by painful diarrhea. We have repeatedly seen patients, weakened by involuntary seminal emissions, whose digestive troubles were produced by the alternation, so often observed in neurasthenics, of hyperacidity with its accompanying disorders and hypochlorhydria. In the stage of hypersecretion of gastric juices the patient has in addition to the tormenting pyrosis typical gastric cramps, spasms of the pylorus, which may lead to repeated vomiting. The appetite is meanwhile very poor, yet there are occasional periods of bulimia.

The stage of hyperchlorhydria is frequently succeeded by one of decided lack of hydrochloric acid. The patients lose their appetite completely, intestinal colic and severe painful diarrhea appear, which quickly sap the patient's strength. The attacks of spermatorrhea from defecation increase with each obstinate constipation, and so the vicious circle is complete, which forms the changing picture of sexual neurasthenia caused by pathologic losses of semen.

It is usually the digestive disorders which induce the patients to seek the aid of a physician. And so these unfortunate persons often pass from one stomach specialist to another without confessing the true cause of their troubles, because of false shame. The competent physician will often discover the primary cause, however, of the neurasthenic gastric symptoms by direct leading questions, and by removing the morbid seminal losses will quickly cure the disorders of stomach and bowels.

We find especially in the old histories of patients of Des-

landes, Lallemand, Tissot and others numerous proofs of this. They describe the long wanderings, which such patients had to make from one specialist to another until at last the fundamental cause, the spermatorrhea, was recognized, and an effective general therapy and local treatment of the genitals could be undertaken.

Quite striking symptoms from the circulatory system often appear in these patients. They suffer intense palpitation of the heart and sense of oppression during every pollution and often also with each emission at defecation and urination. Such patients often have an accelerated pulse. Their vasomotor nervous system is always in a very unstable equilibrium. They complain of profuse sweats. They awake after each pollution bathed in sweat. One of our patients showed the peculiar symptom of one-sided sweating. Several times a day an extremely copious sweat broke out on the entire left half of his body (head, trunk, and limbs), and this tormented him so that even in winter he would put on only the thinnest clothes, and at night used hardly any covering.

The profuse sweats, the tachycardia, the gastro-abdominal symptoms, the emaciation, etc., suggest in such cases a diagnosis of exophthalmic goiter or a genuine neurosis of the sympathetic system.

(To be Continued)

REVIEW OF CURRENT UROLOGIC LITERATURE

JOURNAL D'UROLOGIE

Vol. III, No. 1, Jan. 1913.

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1. Diffuse Perivesical Phlegmon of Prostatic Origin.

Legueu reports the case of a man of 58 who entered the hospital for an extravasation of urine and retention. Although there was little to be seen on admission, his local and general condition rapidly became worse; the penis and scrotum swelled up enormously, an extravasation appeared in the perineum surrounding the urethra; the facies had become earthy, the tongue dry, the pulse rapid and the temperature elevated. Four hours after admission an extensive perineal section was made and purulent fluid evacuated, two counteropenings were also made and peroxide lavages instituted. The man's condition steadily became worse and he died on the 11th day after operation.

At autopsy there was found:

1. A tight urethral stricture with a displacement of the urethra by the perineal collection.
2. A suppurative prostatitis of such an extent that the entire prostate was destroyed and its location filled with a purulent mass. The urethra however was intact and the purulent material drained into it.
3. A diffuse perivesical phlegmon. The entire bladder was enveloped by a zone of serous or sero-purulent infiltration involving the entire subperitoneal cellular tissue.

2. Hydronephrosis of Thirty Liters, Diagnosed Late by a Physico-Chemical Examination of the Liquid.

The subject of this report was a woman of 25, who at the age of 8, gradually developed an abdominal effusion which reaccumulated promptly after puncture and maintained a fixed size thereafter. This "pseudo-ascites" was not accompanied by pains or by intestinal symptoms but after traumatism it would rapidly increase in size, become painful, and be associated with transient hematuria, although the urine output would remain constant. There were all the signs of free fluid present in the abdomen and a cord-like mass (later found to be the colon) could be felt extending obliquely across the abdomen. The patient was pale and thin and ran a low temperature. Repeated punctures failed to keep down the size of the abdomen which increased enormously, constipation supervened and pernicious vomiting and the patient died in a state of severe cachexia.

The diagnosis lay at first between an ovarian cyst and tuberculous peritonitis, more probably the latter. Hydronephrosis was not suspected until analysis of the withdrawn fluid furnished additional and conclusive information. Thus one of the punctures showed a fluid with a total content of 2.2 grams albumen. Now the authors have shown that peritoneal transudates have a minimum content of 3 grams of albumen (per liter), and thus the diagnosis of ascites was thrown out. The diagnosis of cyst of the ovary was excluded on similar grounds, for instead of a content of 8 gr. per liter in chlorides there were only 5.3 gr. present. The diagnosis of hydronephrosis was made from the urea content (3.87 gr. per liter) according to the following reasoning. Although practically all body fluids, including the blood, could contain this amount of urea, the patient would show clinical signs of azotemia, which was not the case here. Moreover, if the urea was distributed generally throughout the body it would do so without diminishing the concentration of the other molecules and the freezing point would therefore be very much depressed,—which was again not the case. In fact the figure for the value Δ , 0.59° , would not have led to the suspicion that the investigators had to deal with a urinous fluid had not the urea been estimated simultaneously.

The authors conclude that in all cases where the origin of an effusion is doubtful, a physico-chemical investigation should be made to supplement the results (in this case worthless) of cytological and bacteriological studies.

3. Inferior Vesical Fissure, Inversion of the Bladder, Strangulation.

The subject was a girl of 13 months, who when seen by Houzel presented a "strangulated tumor" in the vulvar aperture projecting from below the pubis. The surface was covered with mucosa which gave evidence, in parts, of failure of the blood supply. The history was that from the birth of the child there was a defect of the bladder

and that from time to time as the child strained a portion of the mucosa would appear, but could always be pushed back. In this attack the mass had been irreducible for two days.

At operation, which was done immediately, it was found that the entire bladder had become inverted. This could be reduced only after the application of warm compresses, but the condition recurred immediately after withdrawal of the finger, so that a simple plastic involving narrowing of the aperture had to be done before permanent retention could be effected.

The author goes on to discuss the pathogenicity of the condition, points out that it belongs to the group of *partial* exstrophies, is of great rarity (only 5 cases reported), and occurs only in girls. It is important to know of the existence of this condition as one surgeon attempted to remove an inverted bladder, mistaking it for a vascular tumor of the urethra.

4. Nocturnal Incontinence of Urine of Gastro-Hepatic Origin.

The following features are pathognomonic for this type of nocturnal incontinence.

1. A preliminary period of "propriety." Between the end of the period of physiologic enuresis of the nursling and the onset of the digestive enuresis, there is a distinct interval during which the child does not urinate in bed.

2. Intermittence of the enuresis.

3. Digestive disturbances, mild in degree but constant.

4. Profound type of slumber which is the immediate cause of the involuntary urination.

5. An attenuated (i. e. mild) nervous heredity. The bed-wetting itself may be transmitted from the parents.

6. Response to the therapeutic test. In general the diet is reduced. Wine and all fermenting foods are excluded. Light laxatives are given and occasionally mechanical treatment involving massage and the application of warm water compresses.

The author reports several cases and discusses the differential diagnosis between this type of enuresis and those due to the continuation of the infantile form on the one hand and to an increased constitutional emotionality on the other.

5. Death by Air Embolism Following an Injection of Air into the Bladder.

The subject was a man of 63 who had an enlarged prostate and who was about to be operated on by the author. Spinal anesthesia was given with 3 centigrams of stovaine and the injection of air into the bladder was commenced in the usual manner. When 180 c.c. had been introduced the patient complained of precordial distress and of a desire to vomit. He had hardly finished speaking when he expired,

the circulation and respiration stopping simultaneously. At autopsy the ascending aorta and the inferior vena cava were ligated, the heart removed, plunged into a vessel of water and an incision made into the right ventricle. A large bubble of air escaped. In the abdominal portions of the vena cava small bubbles of air could be seen through the vessel walls.

Nicolich believes that the air penetrated from the bladder into the veins of that organ or those of the prostate.

6. Death by Air Embolism During a Prostatectomy.

When Marion received the preceding case for publication he doubted the possibility of such an accident. However he soon had a similar case himself. At the operation 6 syringefuls of air (each of 150 c.c. capacity) were injected into the bladder without an appreciable increase in its volume. On incising the abdomen the tissues were found to be emphysematous, but the prostate was nevertheless readily removed. At this point the operator noticed the extreme cyanosis of the subject. The chloroform anesthesia had been stopped some time previously. Death occurred in a few minutes.

The heart, which was removed after ligation of the great vessels, was easily seen to be full of air even before incision under water, as there was a peculiar soft feel of the right ventricle and auricle and a distinct clapotage. The inferior vena cava and the renal veins were filled with air bubbles.

Marion agrees with Nicolich that it is safer to fill the bladder with water than with air.

7. Simple Perforating Ulcer of the Bladder.

Lefèvre operated on a 58 year old woman for a large strangulated femoral hernia. About 2½ weeks later she was suddenly seized, while attempting to urinate, with severe abdominal pain. For a time the desire to urinate continued but it soon stopped and did not reappear to the end. Physical examination revealed a slightly distended abdomen, painful to pressure, with dullness to percussion and muscular rigidity in the hypogastric region. The muscular rigidity soon disappeared. The patient had constantly to be catheterized, the urine coming out without force. The general condition became steadily worse, signs of intoxication supervening, and the patient dying in coma with Cheyne-Stokes respirations. There was never any fever.

At autopsy, the abdominal cavity was found full of urine, but there was no peritonitis. On the posterior aspect near the summit of the bladder was found a simple perforation, microscopic examination of the borders of the ulcer failing to reveal any trace of cancer or of tuberculosis.

Although neither in this nor in any previously published case was the diagnosis made ante mortem, the author would point out the following features as very characteristic of vesical perforation:

1. Retention of urine.
2. Absence of desire to urinate.
3. Absence of hypogastric tumor.
4. Absence of vesical contractility.
5. Presence of peritoneal effusion, diminishing after catheterization.
6. Rapid appearance of signs of peritoneal irritation and their cessation and replacement by symptoms of intoxication.

8. Double Inguinal Hernia of the Bladder.

The patient presented a left inguinal hernia, with the bladder attached to the sac by its extraperitoneal portion. This was a simple case of cystocele and was accompanied by an enterocele and by an ectopic testicle. On the right side the bladder was found similarly (extraperitoneally) adherent, but here the condition was probably one of congenital ectopy or of a congenital diverticulum of the bladder.

9. Hemorrhage in a Movable Kidney.

A woman of 46 began suddenly to pass bloody urine. There was no other urinary abnormality whatever but the patient complained of pain in the region of the left kidney. On examination an enlarged, tender, floating kidney was made out on the left side. Cystoscopy showed a normal bladder but the urine coming from the left ureter was bloody and increased in amount (polyuria of irritation). An X-ray examination was negative. The hemorrhage ceased spontaneously in sixteen days at which time the patient, although slightly anemic was otherwise quite well. Being troubled by recurrence of pains when she began to go about her business, an abdominal binder was prescribed with good results. Four years later there was no recurrence of the troublesome signs or symptoms, the kidney, while of course still movable, not being enlarged or tender.

Caspari rules out stone, tuberculosis and new growth, and would explain the condition as follows: renal mobility, traction on and partial occlusion of vessels, renal stasis, diapedesis, hemorrhage. He believes that many cases of "renal hemophilia" could be explained on the above basis.

10. Pollakiuria as a Symptom of Congenital Narrowing of the Urethral Meatus in an Adult.

Ducastaing's patient, a young man of 23, came to the hospital complaining of pollakiuria, sensitiveness in the bladder region and sticking sensations in the penis. These symptoms pointing to gonorrhea, copaiba was administered (despite the absolute denial of infection) with but temporary relief.

Tuberculosis and stone in the bladder were ruled out, as were all the acquired forms of stricture. Sounding of the urethra through the apparently normal meatus, revealed several veil like thickenings

of the mucosa, close behind the meatus, thus showing the presence of a congenital stricture. Dilatation with Beniqué sounds up to No. 40 gave a complete anatomical and functional cure.

The author comments on the absence of the usual symptoms of congenital narrowing such as "slowness of micturition," "incontinence and dribbling," "crises of retention," "dysuria," etc., etc.

11. Ureteral Catheterization with the Direct Vision Cystoscope.

Ferron states the advantages of the Luys (direct vision) instrument and cites instances where it is preferable even to the prism cystoscopes (Albarran type). Perhaps the main advantage of the former is its simplicity of construction and the more perfect asepsis possible in its employment. This feature is so important that it renders direct vision cystoscopy the method of choice in the female. In the male this manœuvre is more painful but the author suggests modifications in the instrument to obviate this difficulty. Nevertheless a narrow urethra or a very adipose subject are practically insurmountable obstacles in cystoscopy of the male.

Among other advantages for the Luys instrument Ferron mentions the greater ease of discovering and catheterizing a ureter invisible with the prism cystoscope, and the possibility of catheterizing an abnormally located ureter opening near the bladder neck.

12. Importance of Making an Exact Diagnosis of Urethritis.

When Janet receives a new patient who has suppressed the discharge by hand injections or by the use of sandalwood oil, he tells him to stop all self-medication and to return as soon as the discharge reappears so that an exact bacteriological diagnosis can be made. Janet then employs the 2 glass test, always centrifuging the contents of the second glass. When shreds are present he first irrigates the anterior urethra so that whatever shreds appear will have originated in the posterior portion.

The prostate is next massaged and if no secretion appears at the meatus the patient passes urine (or water previously introduced into the bladder) and that is examined for organisms. In order to complete the investigation the spermatic fluid may be investigated.

Janet cautions against the use of metallic sounds, exploratory bougies, or endoscopes in the acute cases, claiming that their use should be reserved only for chronic or non-specific cases.

ZEITSCHRIFT FÜR UROLOGIE

Vol. VII, No. 4.

1. Demonstration of Kidneys Removed at Operation. By Wilhelm Israel. P. 262.
2. A Case of Malignant Tumor of the Kidney of Syncytial Structure. By Drs. Blecher and Martius. P. 269.

3. Contribution to the Surgery of Prostatic Atrophy. By Hans L. Posner. P. 277.
4. Bladder Tumors in Workers in Anilin Dyes. By Arthur Lewin. P. 282.
5. Prognosis in Nephritis. By H. Strauss. P. 287.

Demonstration of Kidneys Removed at Operation.

Israel describes six kidneys and publishes two plates, one in colors. The first specimen was the right kidney of a 20 year-old man who died later from tuberculosis of the other organ. The preparation showed not only a characteristic involvement of the apices of the papillæ but also a most peculiar yellowish-brown pigmentation resembling that of the adrenal. The coloration seemed to be due to the presence of hematin crystals.

The second preparation was a tuberculous hydronephrosis. The main point of interest was the origin of the ureter. This region was not only studded with tubercles but showed an old scar, the seat of a previous ulceration, which had so narrowed and twisted the outlet from the pelvis that the urine had the greatest difficulty in finding an outlet. The author points out that the exclusion of ulcerating tuberculous areas by cicatrization at the point of drainage, as in this case, causing the disappearance of tubercle bacilli from the urine, may lead to false conclusions that healing has occurred.

The third case was one of autonephrectomy of a tuberculous kidney. Only the pelvis remained as a definite structure, the rest of the organ being represented by a small mass of fat. Considerable difficulty was experienced in differentiating the "kidney" but satisfactory orientation was achieved by isolating the ureter below and then following it upward.

The fourth specimen was a pyonephrosis oclusa tuberculosa in which the kidney was greatly dilated above a small stone lying in the pelvis. There was no outlet whatever, the ureter being obliterated at its point of origin from the pelvis. This condition was suspected before operation from the history and X-ray examination.

The next specimen was an enormous hydronephrosis removed from a physician of 40 years of age who had had symptoms ever since childhood. Only lately did the occurrence of colic and fever constitute an indication for removal. At operation the sac was tapped and 7 liters of a thin brown fluid evacuated. This was in all probability a congenital condition and, as in all such cases, the original cause of obstruction could not be determined.

The last case was a hypernephroma which was composed largely of thick walled cysts. There was a history of severe hematuria in this case but as the kidney pelvis was everywhere surrounded by healthy kidney tissue, the author assumes that the blood came from the healthy parenchyma and the mucous membrane of the kidney pelvis.

2. Malignant Tumor of the Kidney of Syncytial Structure.

The patient, a man of 21, had a sudden attack of hematuria without other symptoms, which passed away leaving the urine normal as before. Chromocystoscopy showed apparently normal kidneys, ureters, and bladder. The attack was repeated and this time cystoscopy revealed a small projecting growth on the anterior superior wall of the bladder. The tumor was removed by the transvesical route and the patient made a fair recovery. Examination one year later showed him to be free from recurrence.

Microscopically the growth was of a rich cellular type without distinct intercellular walls, giving the characteristic appearance of a syncytial tumor. Microscopically the growth had involved the mucosa and there were little tumor nodules scattered about the mass proper in a way very suggestive of metastases. For these reasons, although the histogenesis is obscure, the authors regard the tumor as malignant.

3. Contribution to the Surgery of Prostatic Atrophy.

Posner reports four cases of atrophy of the prostate. The first was the result of inflammatory change, the second a senile involution. The third case was an atrophy "sui generis" but may have been the result of anomalous development as there was a congenital malformation elsewhere in the body. The last case was a valvular reduplication at the neck of the bladder, the result of bladder atony following a prostatic atrophy, congenital in origin.

The symptoms caused by this condition were diverse but in general resembled those of prostatic hypertrophy: obstructed urination, retention or interrupted urination or incontinence. An ectomy was performed in each of the reported cases with a resulting improvement in bladder function.

In explaining the symptoms the author suggests that the atrophy of the gland causes a serious change in the muscular constituents of the prostate, in other words in the M. sphincter intern. of the bladder, with a resulting paralysis or chronic spasm of the organ. These, in turn, lead either to incontinence or retention, and sometimes the first may go over into the second.

The author does not go so far as to insist on operation in all cases but feels that it is indicated in the stage of retention. The technic of prostatectomy is much more difficult, of course, than in hypertrophied cases.

4. Bladder Tumors in Anilin Dye Workers.

Lewin quotes Leuenberger's statistics showing that death from bladder tumor is 33 times more frequent in anilin workers than in the rest of the male population. Substances such as anilin, toluidin, naphthylamin, which are hydrated aromatic amidocompounds, are the ones chiefly responsible for the disease. The reason that the genito-urinary system is specifically involved seems to be that these substances

are concentrated and excreted in an oxydized form by the uropoietic organs and that it is this new form which has the peculiar irritative action.

Lewin's case was that of a man of 49 who had worked for 19 years, up to 6 years ago, in benzol, totuol and anilin. He had taken all the customary precautions and had been well until last June when he commenced to suffer with frequent and bloody urination. He became very anemic, and quickly lost weight. Cystoscopy revealed a large tumor involving the larger part of the superior bladder wall. At operation it was found that the growth had metastasized freely in the pelvic lymphnodes rendering the removal of the tumor out of the question.

In commenting on his observation, the author points out a characteristic feature in the anamnesis of these cases: viz., the late development of the tumor, in this instance 6 years after the patient had last worked with anilin materials. The prognosis is bad.

5. Prognosis in Nephritis.

Strauss estimates the rest-nitrogen content of the blood serum as a basis for establishing a prognosis in cases of nephritis and reports his findings as follows:

1. The normal rest-N content is 40 mg. in 100 c.c. of serum.
2. Very high values (150 mg. in 150 c.c.) mean a very bad prognosis, that is, exitus within a few weeks or months, perhaps sooner.
3. Values of between 75 and 100 mg. are of less serious import than those above cited.
4. Still lower values, however, by no means preclude the advent of uremia or of other life-threatening complications.
5. The original method of determining the rest-N, as employed by the author is of value especially in the chronic, hypertonic form of nephritis. It is of less use in the chronic parenchymatous and acute types but has nevertheless given satisfactory information in cases of acute nephritis from sublimate poisoning.
6. High figures for retention were obtained in a case of coma uræmicum thus establishing the differential diagnosis between that and coma apoplecticum.

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9. The Future of the Treatment of Hemorrhagia. By Jules Janet. P. 221.
1. **Leucoplasia of Kidney Pelvis.**

The patient was a woman of 28 who for the last 9 months, following childbirth, complained of pains in the right kidney region. There was no dysuria but urination was increased infrequency and the urine was purulent. Examination revealed a large mass in the right lumbar region and ureteral catheterization showed that the right kidney was functionally much inferior to the left. At operation there was much perinephritis and periureteritis and the kidney pelvis was distended to the size of an ostrich egg. Nephrectomy was done. On examining the specimen the renal parenchyma was diminished in thickness; the pelvis was distended with cloudy urine. The mucosa of the pelvis seemed to be transformed throughout the greater part of its extent into a thin cutaneous tissue resembling the inner surface of the prepuce.

At its upper part the mucosa retained its usual violet hue and presented some lesions of pyelitis. Below, there was also an ovoid zone of mucosa which had not undergone this peculiar transformation. Microscopic examination of the changed tissue showed that it was composed of true skin elements. Colon bacilli were found in the pelvis urine.

The author does not believe that there was a "metaplasia" in this case brought on by infection, but regards the condition as congenital due to a maldevelopment of the urinary apparatus, an "ectodermic heterotopy."

2. Study and Classification of a Case of Bilateral Polycystic Kidney.

Anglada reports the case of a man who was admitted in uremic coma following an attack of facial erysipelas. The subject had complained of occasional feeling of weight in the lumbar regions but had shown no important symptoms until the onset of convulsions and unconsciousness which proved rapidly fatal. During the short period of observation it was noted that the urine had decreased in amount until practically none was being excreted, and that large masses could be palpated in the region of both kidneys.

At autopsy two enormous polycystic kidneys were discovered. Their dimensions were 23 by 13 by 7cm. and each weighed about a kilogram and a half. The author goes into a detailed anatomical and histological description of the organs. Suffice it to say that the cysts were restricted mainly to the cortex, that there was considerable peri-

glomerular fibrosis, and that there was an "embryonal" infiltration of the uriniferous tubules.

In regard to the pathogenesis of this condition the author takes up in some detail the neoplastic, inflammatory, and congenital theories of its origin, but concludes that no one of these theories can explain the origin of all cases of cystic kidney. He is inclined to regard the case which he reports as congenital in origin. As regards treatment, nephrotomy or nephrectomy should never be undertaken unless the other kidney is anatomically and functionally perfect.

3. Renal Tuberculosis in a Child.

The authors report the case of a girl of 11 in whom a diagnosis of tuberculosis of the left kidney was made after a catheterization, at two successive sittings, of each of the ureters. The diagnosis was confirmed at operation where a nephrectomy was done. The direct method was employed in 6 other children suffering from various conditions within and outside the urinary tract. The authors come to the following conclusions:

Cystoscopy by direct vision is always possible in girls over 5 years of age. The urethra admits a No. 40 tube of 7 centimeters' length. Where the bladder is tolerant a slight Trendelenburg position aids in distending the bladder. The child's bladder resembles that of the woman and even though the interureteric band is not well developed it can be satisfactorily made out. The ureteral orifice admits of the passage of a No. 6 or 7 catheter. A very minute orifice occurs no more frequently than it does in the adult. General anesthesia is by no means always necessary, but it is better to employ it in the case of nervous children.

4. Plastic Operations on the Pelvis and Ureter in the Treatment of Renal Retention.

Eliot describes the seven plastic operations devised for the relief of renal retention (hydro, or pyonephroses), viz., section of a pyelo-ureteral spur, terminal inosculation of the ureter into the pelvis, ureteroplasty and ureteropyeloplasty, lateral anastomosis of the ureter, pyeloplication, resection of the pyelo-renal sac, and nephro-cysto-anastomosis, the last being done only when the kidney is fixed in a pelvic position and adjoins the bladder.

Regarding the operative technic, a ureteral catheter should always be inserted as high up as the pelvis if possible, before commencing the operation. A long lumbar incision is most commonly employed and the kidney delivered. Great care should be exercised in separating adhesions between ureter and kidney. Nephrotomy is next done, this being preferable to pyelotomy as it gives a greater exposure and all septa which might obstruct the flow of urine through the pelvis should be broken up with the examining finger. The proper plastic

procedure is then carried out. If the ureter has not been previously catheterized one should not fail to establish the patency of the urinary tract clear down to the bladder. Lumbar drainage is most commonly employed but instead, or in addition, ureteral drainage may be instituted with a No. 12 (Charrière) catheter. A final nephropexy is often advisable. The lumbar drain is removed on the third day in hydro-nephroses, on the sixth in hydropyonephrosis, whereas the ureteral catheter need not be removed until the tenth day or later. The latter may be replaced by another catheter along a hard rubber mandrin without the need of another cystoscopy. As long as the ureter catheter remains in situ daily lavages of the pelvis should be carried out.

The author then goes on to discuss the indications for employing this conservative treatment for renal retentions and the choice of the various procedures. He has collected from the literature 111 cases of plastic operations and presents protocols of all these operations with the results. References are given in each instance.

5. Effect of Five Tuberculous Granulations in a Kidney.

The patient bled constantly for a month from one kidney. There were attacks of severe pain and there was frequency of urination. Catheterization of the ureters revealed the escape of blood from the right side and this urine contained only half as much urea as did that from the opposite kidney. The diagnosis of tuberculous kidney was made from the existence in the same patient of a suspicious swelling of the epididymis, cord, vas, prostate, and seminal vesicle.

At operation an apparently healthy kidney was removed but on sectioning the organ five distinct granulations were found in the region of the papillæ. Microscopic sections showed that the hilus fat and the renal cortex were the seat of a follicular tuberculous infiltration with numerous giant cells.

6. Spontaneous Fragmentation of Vesical Stone.

Christian's patient complained of pain in the hypogastric region, difficult, frequent and cloudy urination. On passing a metal catheter into the bladder a stone was felt and on cystoscopy two stones, the size of nuts, were readily seen. At operation however these two stones were found to be the two parts of one stone which had undergone spontaneous fracture, as there had been no previous instrumentation. The stone was composed of calcium oxalates and urates.

7. Hydatid Cyst of Kidney.

Diamantis's patient was a Greek, 52 years of age, who complained of attacks of pain in the left loin which would be relieved only after the passage of a hydatid vesicle. On one occasion only was there hematuria.

On physical examination there was some muscular rigidity in the left lumbar region and some costovertebral tenderness. Cystoscopy

revealed the presence of vesicles in the bladder urine. The left kidney proved functionally less competent than the right. The urine did not contain hooklets.

At operation the pelvis of the left kidney was found to consist of a large sac, partly calcified and containing large numbers of vesicles. Nephrectomy was done and the patient recovered completely. The specimen was found to consist of a hydatid cyst which had begun in the lower pole of the kidney and had grown in the direction of the pelvis. The wall was partly calcified. The renal parenchyma was thinned.

MISCELLANEOUS ABSTRACTS

The Symptomatology of Renal Tumors.

Dr. J. Dellinger Barney presents a study of 74 cases from the Massachusetts General Hospital (*Bost. Med. and Surg. Jour.*, Vol. CLXVIII, No. 9). There were 43 males and 31 females, ranging in age from 2 to 66 years, the incidence being greatest in the fourth decade. The duration of symptoms ranged from a few days to over ten years, but in more than half the cases there were symptoms that brought the patient to the hospital within a year of their onset. In many cases the malignant nature of the disease manifested itself in loss of weight and the general condition long before any local symptoms appeared. Frequency, dysuria, urgency or difficulty in urination were noted in 21 cases, but are not to be regarded as pathognomonic. In 46 urination was said to be normal in every respect. Loss of weight is known definitely to have occurred in 51 cases. Nausea and vomiting, usually accompanying renal colic, but often of independent origin, were noted in 29.

Hematuria, like pain, also may begin insidiously and without apparent cause. It often alternates with a clear urine, and may occur but once or may be constant.

An inquiry into the initial symptoms in these patients shows that pain alone occurred in 25, hematuria alone in 18, and tumor alone in 15. Pain and tumor, and pain and hematuria sounded the alarm in six cases each, hematuria and tumor together were seen but once. That pain is an almost constant feature is shown by the fact that it occurred at some time during the course of the disease in 63 out of the 74 cases, while the patient had noticed a lump in his side 46 times, and had passed bloody urine 39 times.

Further analysis shows that from time of onset to operation or death pain was the sole symptom in 10 cases, tumor alone in 5, and hematuria alone in 3. These symptoms were found grouping themselves together in one combination or the other so that during the course of the disease pain and tumor were the symptoms in 22, pain,

tumor and hematuria in 16, pain and hematuria in 15, and, finally, tumor and hematuria in 3.

The general condition of 30 was considered to be good, whereas in 28 it was distinctly poor, and in 15 could be called only fair. In other words, 43 cases showed the effects of the disease to a greater or less extent.

Sixty-five patients had a normal temperature at time of entrance, from which it is clear that renal growths *per se* cause no pyrexia.

An examination of the urine in 71 cases showed the presence of albumen, pus, casts, or blood in 61. Hematuria was observed after their admission to the hospital in 17 patients. It is thus seen that a pathological urine is the rule, but it is equally clear that in the absence of hematuria it may give no definite clue to the diagnosis. It is also noteworthy that in ten cases, all with well developed tumors, the urine, when examined, was normal in every respect.

Convincing proof of the constancy of a palpable tumor is furnished by its presence in 65 cases. In a few the mass could not be differentiated from a mere hypertrophy of the kidney from some other cause. In the large majority its shape, nodularity, hardness, immobility, and, in some cases, enormous size, left no doubt as to its nature. Tenderness is not a constant feature, as it was mentioned by the patient before entrance only fifteen times, and was elicited during the course of the physical examination only 27 times.

In view of the known tendency of renal tumors, notably hypernephromata, to begin in the upper pole, and hence escape early detection, the writer emphasizes the importance of examination in other than the dorsal position. The bowels should be thoroughly emptied, and the methods of renal palpation described by Guyon and by Israel used with care.

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CONGENITAL DILATATIONS AND DIVERTICULA OF THE URETHRA, WITH CASE REPORTS

By MANUEL CABEZAS, M. D., Lyons, France.

TO be a *congenital* dilatation or diverticulum of the urethra, the condition must have been noticed during the first few days of life or the subject must be sufficiently young so that no other etiological factor can be attributed. Besides the mucosa must be continuous with that of the urethral canal. The anterior urethra (that portion comprised between the bulb and meatus) has a supporting element, the corpus spongiosum composed of elastic fibers and bundles of connective tissue. These fibers and bundles extend around the canal and are differentiated into two strata.

In relationship with the thin layer of muscle fibers surrounding the urethra in this region is found the erectile tissue proper, formed by a network of elastic and connective tissue fibers which contains areolae which, according to Testut, play an important part in erection. At the external part in relationship with the subcutaneous cellulo-adipose layer, the erectile tissue of the corpus spongiosum, by becoming condensed, forms a transparent elastic layer similar to the albuginea which covers the corpora cavernosa.

This explanation has seemed necessary for the understanding of the part that observers have attributed to the corpus spongiosum, particularly in the formation of congenital dilatation of the urethra. In those cases where an histological examination has been made, a mucosa everywhere continuous has always been found, made up of pavement cells on the surface, the deeper layers being composed of cylindrical cells. In case II, the epithelium was of the pavement type, and was keratinized throughout its greater extent, a condition explained by

the proximity of the pocket to the urinary meatus where the cells have a structure almost identical to that of the dermoid mucosa of the glans. Another point which made it resemble the mucosa of the glans was its greater richness in papillae than in the normal urethra.

The longitudinal muscular fibers which separate the mucosa from the corpus spongiosum are wanting in almost all cases of congenital diverticula of the urethra, a condition which cannot explain the formation of the process, given the small size of these fibers. It is probable that they are not encountered in the diverticulum because, being longitudinal, they are easily spread apart. On the contrary, the circular fibers, which are very short, offer a greater resistance to any cause of dilatation.

The majority of observers have been of opinion that diverticula of the urethra could only exist if the corpus spongiosum were absent. However in both cases to be reported the presence of these bodies was noted. In case II a child four years of age, the microscopical examination of the diverticulum after extirpation was as follows:

Sections reveal a wall largely composed of large connective tissue bundles. At the borders of the section this tissue is somewhat dissociated. Some scarce adipose islets are seen, but particularly at this point, the fibers are dissociated by the occurrence of minute hemorrhages which are not in the thickness of the wall itself and appear to be due above all to the excision. On the other border of the section a stratified mucosa of the ectodermic type with dermic papillae is seen and also with a superficial layer presenting a lamellar aspect which stains yellow with carmin, no longer offering stainable nuclei, in other words it is keratinized.

In this examination, it appears that the sections were made in the ureteral pocket only; to the exclusion of the cutaneous pocket covering the latter. The tiny hemorrhages which, in certain areas, had caused dissociation of the large connective tissue bundles, probably had as a cause a degeneration of the erectile tissue resulting from an irregular vascular irrigation. It appears to me evident that the dissociation of these connective tissue bundles—combined with the presence of these masses of adipose tissue—can have no other explanation.

In a case operated on by Dr. Durand, the diverticulum was carefully examined histologically by Dr. Pavit, chief of the Laboratory of Pathological Anatomy. His report is as follows:

"Two question were put to us and we can reply: (1) That the epithelium lining the pocket is everywhere normal, everywhere identical and everywhere of the same thickness; (2) that all the strata of the canal are present and have the same development everywhere; that particularly, the corpus spongiosum only offers variations of vascular richness in different areas, but has undergone no atrophy nor disappearance at any point. We would add that the unstripped muscular fibers, scattered in the connective tissue wall outside of the corpus spongiosum, are equally disseminated everywhere."

As is seen, in this examination the epithelium as well as the corpus spongiosum and all the other elements of the urethra offer an absolutely normal structure. Dr. Durand, who carefully studied the case, is of the opinion that these defects are not and cannot be explained by the persistence of a stage of the normal development. The process is not one of simple arrested development, being more complex and should be considered as a *disturbance of development*. He points out that the microscopical examination of the diverticulum is a powerful argument in favor of this theory, because it demonstrates that the corpus spongiosum is perfectly formed and lines the entire dilatation of the mucosa. Consequently, this lining does not form a simple hernia through an opening in the corpus spongiosum; the process is more complex. Dr. Durand goes on to say that if it is recalled that the communicating orifice is very narrow as compared to the pocket, what would take place if this orifice *did not* exist must be thought of. One would then have a diverticulum composed of all the layers of the urethra, but independently of this canal. In other words, there would be a suburethral median cyst that would be explained as a developmental anomaly of the embryonal urethral gutter and not as an arrested union of its borders. Durand adopts this opinion and believes that the defect involves all of the component elements, namely: (1) the mucosa which has developed into a large pocket; (2) the spongy tunic everywhere lining the diverticulum; (3) the skin of the penis which has developed in excess and further marks a disturbance in growth by the enlarged and abnormal aspect of the brown colored line which forms its raphé.

If congenital dilatations of the urethra are the result of a disturbance in development of the various tissue strata com-

posing this canal, this disturbance should probably result from an irregularity in the vascularization. In my second case *minute hemorrhages* were discovered in the bundles of connective tissue. In speaking of the vascularization, Durand remarks that *the corpus spongiosum merely offers variations of vascular richness in different areas.*

The spongy tissue in this particular case should offer a specially soft consistency so that, without any precise mechanical cause, it becomes dilated at the same time as do the other layers of tissue composing the penis in this portion.

In the oldest reported case of congenital dilatation of the urethra, that due to Laugier, the result of the microscopical examination differed notably from my case II and the observation of Durand. Laugier's case was that of a three-year-old child but he was kept under observation and only operated on at the age of seven. An interesting histologic study was made by Dr. Labory, a few details of which I will give. The walls of the diverticulum were about two and a half millimeters in thickness, the internal surface was lined by a mucosa which was thicker than that of the upper part of the urethra at this level. It was whitish and not normal pink like the rest, and had some appearance of epidermis although it was smooth and uniform. At the points where the canal continues with the pocket, no valves existed which might interfere with the jet of urine. Between the epidermis and mucosa of this rather elastic pocket, microscopically an elastic dartoid tissue was found in greater quantity than in the normal dermis. There was complete absence of the muscular stratum and spongy tissue. From this examination only the dartos and mucous membrane were found under the skin covering the tumefaction and not a trace of muscular fibers or spongy tissue.

One is led to believe that there must have been an arrest in development in the urogenital gutter in order to explain the absence of the corpus spongiosum. Perhaps this case may be one of those rare examples of incomplete hypospadias, but this is simply a suggestion.

An important part has been attributed to the urine in the production of urethral diverticula, especially when *valves* are found in the interior of the pocket. Valves normally exist in the urethra in the neighborhood of the lacunae but do not cause any trouble in micturition when their free border looks towards

the meatus. On the contrary, that of the fossa navicularis, long since described by Guérin, which also points outwards, will often act as a barrier to the passage of a sound. For this reason all urologists advise directing the tip of the instrument towards the posterior urethral wall when introducing it. Jarjavay stated that he had encountered this valve *eleven* times in *seventy* subjects.

In case II and Durand's case the orifice of communication between the sac and urethra was very small, but there was no spur or valve which diverted the course of the urine into the diverticulum. The urine entered little by little by its own weight under the influence of pressure.

Out of a total of nine cases which I have collected as authentic instances, including my own two, of congenital urethral diverticula, there were only two in which the valves were located at the anterior part of the orifice of communication of the sac with the urethra. They were placed in such a way that when micturition took place they became prominent and thus fulfilled the functions of a trap and forced the urine to enter the pocket. It is evident that these valves were only an adjuvant cause of a primary deformity, given the great resistance of the walls of the urethra to distension from the only mechanical cause of urinary pressure.

Guyon is of opinion that these valves have no action on dilatation of the urethra and as an example he quotes Delbovier's case where the urethral canal was not distended above the occlusion, while the portion comprised between the latter and the meatus measured at some points only 15 millimeters in caliber. This fact, he says, shows in the most explicit way the possibility of the occurrence of congenital dilatation from any mechanical influence.

To sum up, this is how I consider the etiology and pathogenesis of congenital dilatation of the urethra: (1) There is considerable probability that these dilatations result especially, as Durand affirms, from a *disturbance in the development* of the various tissue strata of the urethra, due to an abnormal blood supply, particularly in the spongy tissue. (2) In other cases one may invoke, not a disturbance, but a *defect in the development* of these strata, the corpus spongiosum being totally wanting in the region of the tumefaction; this can only be explained by an *incomplete closure* of the urogenital gutter. (3) The

presence of a valve in a dilatation of the urethra is only to be considered as an adjuvant cause (joining its mechanical action with that of urinary pressure) in a defect already formed or on the way to formation.

The two following unpublished cases are due to the kindness of Prof. Nové-Josserand.

CASE 1. L. U. aet. 5 years. This child was brought to the hospital during its first year of life for a malformation of the penis which had existed since birth. In the state of repose the penis was a little longer and more flabby than usual, and showed no very visible anomaly; but during micturition an elongated tumefaction on its under aspect was observed. It swelled like a bag-pipe from the root of the scrotum up to the base of the glans. When micturition was ended the sac emptied itself little by little but incompletely on account of the narrowness of the meatus and almost constantly a few drops of stagnant urine could be expressed from it.

The baby's general condition did not permit of attempting a radical operation, so that a small button-hole was made at the most backward point of the sac in order to give a free exit to the urine and prevent stagnation.

The child was brought back four years later for operation. Examination showed a long and very lax penis and as if flattened on its under surface. At this point the skin is abundant offering folds which, when flattened out, form a kind of frill. The orifice of the hypospadias functionates perfectly. Catheterization shows that after passing a rather tight normal meatus, the urethra enlarges at once to such an extent that it fills the redundant skin covering the under aspect of the penis.

Operation. A transverse incision three centimeters long is made immediately in front of the artificial hypospadias opening, entering at once into the urethra whose wall is quite thin. The wall was separated from the skin and this dissection was carried on with precaution, care being taken not to involve the skin. This was pushed forward as the dissection extended and formed on the under surface of the penis a kind of broad band which at length was drawn over in front of the glans. Thus without increasing the incision to any great extent the diverticulum could be dissected out up to the meatus. It was then found that the sac was confounded with the urethral cavity, being a *pure and simple enlargement*, and that it was prolonged backwards over the entire

extent of the spongy portion of the urethra. This entire portion of the urethra was resected, only preserving a sufficient amount to manufacture a new canal which was closed by two layers of sutures (catgut).

The band of skin was next brought back and covered the closed urethra and was closed at the transverse incision with metallic sutures. Permanent catheter introduced.

A week later the penis was quite edematous, so the dressings were removed and as the wound had healed nicely the catheter was removed, likewise the metallic sutures. Four days later the edema was still present although much diminished. There was a tiny fistula which made an indirect communication of the urethra with the exterior, but only very little urine escaped from it. Ten days later the fistula had closed and exploration of the urethral canal with a sound showed that it was closing down and forming a good thick under wall.

CASE 2. Patient fourteen and a half years old; nothing to note in past history. Was breast fed and walked at nine months. At the age of four years he was frightened by a dog and this resulted in a retention of urine. He was catheterized (according to his statement a too large catheter had been used) and the instrument caused bleeding from the urethra. At the age of seven he again had an attack of retention following a fright, which was relieved by hot applications to the suprapubic region.

Since this time, after each micturition, the patient expels several drops of urine five minutes after the act. The patient has never presented any urinary disturbances such as pollakiuria or polyuria, and is not obliged to get up at night. Micturition is neither hard or painful.

Operation. The pocket, the size of a large walnut, contained even under pressure, urine and pus and a large number of small, yellow, round or oval calculi, the largest being the size of a lentil. The sac itself, quite easily dissected out, appeared to be composed of a thick mucosa, which when emptied of the dark liquid it contained, looked both in aspect and color like the scrotum. It communicated with the canal by a very tiny orifice, hardly larger than the head of a pin. In order to remove it completely the urethra had to be opened and was afterward closed with catgut and the structures of the penis were united in layers. A small gauze wick was left to drain the blood oozing from a wound of the corpus spongiosum.

The patient developed a hematoma of the scrotum which was rapidly absorbed and twenty days later the recovery was perfect, micturition being normal.

Histological examination of the diverticulum. Sections showed that the walls were largely composed of large bundles of connective tissue. On the borders of the section this tissue is slightly dissociated. A few small islands of adipose tissue are seen but in this spot particularly the fibres are dissociated by minute hemorrhages which are not in the thickness of the wall itself and appear to be the result of the excision.

On the other border of the sections a stratified mucosa of the ectodermic type is seen, with dermic papillae and also with a superficial layer of lamellar aspect and keratinised, as the nuclei do not stain and the body of the cells is stained yellow by carmin.

To sum up, the diagnosis of a paraurethral sac, lined with stratified epithelium, is confirmed by the microscopic examination.

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THE SYMPTOMATOLOGY AND TREATMENT OF MALIGNANT CHANGES IN THE ECTOPIC TESTICLE

By GEORGE A. TUDER, M. D., Bordeaux, France.

THE symptomatology of malignant tumors of the testicle in inguinal ectopia vary with the different anomalies of position presented by the gland. In this paper reference will only be made to cases of inguinal ectopia.

Usually the commencement is insidious and slow and the patient has previously only been troubled by the little tumor in the groin, representing the testicle, giving rise to a feeling of discomfort or dragging. Now, when the seminal gland commences to undergo malignant change this discomfort increases and pain may develop after a long walk or violent exercise.

However, things may not go on in this way and the discomfort may attain such a degree as to oblige the patient to give up all work. In one of my cases the testicle reached the size of a pigeon's egg within two years and still the patient, who was a sailor, was hardly aware of it, so little discomfort did it occasion.

More infrequently the commencement is sudden, and in another of my cases a very sharp pain was suddenly experienced in

the inguinal canal after the patient had lifted a trunk. In this case it may be assumed that the tumor had already undergone its early development quietly.

As soon as pain manifests itself it possesses distinctive characters. It is an acute, shooting pain, increased by pressure, contraction of the abdominal muscles, walking or standing, in fact the slightest thing will intensify it. It is seated in the tumor itself, from which it extends in all directions, into the perineum, scrotum, thighs and lumbar region. In the first case referred to it first appeared in the lumbar region and right iliac fossa and it was only after several months, following a new paroxysm, that the tumor itself became painful and obliged the patient to take to his bed.

The tumor varies in size from a nut to that of a fetal head, and in one of my cases it was the volume of a turkey's egg. Usually it is oval in shape, while its long axis is parallel to the long axis of the inguinal canal. The skin covering the growth appears normal but there may be some little abnormal vascularization present.

Palpation reveals the exact situation of the tumor: it is deeply seated, separated from the skin, which is movable over it but which becomes tense when the patient sits down.

Generally speaking, the growth surrounds the testicle and epididymis, which is quite difficult to distinguish in the mass. In consistency it is hard, and scattered over its surface a few nodules may be felt. Over the nodules the hard consistency occasionally changes into softness, so that distinct fluctuation can be elicited in certain areas. In one of my cases there was fluctuation at both poles and in the centre of the tumor. Puncture withdrew some fluid, and I would here remark that, no matter what the quantity may be, this fluid is never transparent.

The tumor will also be found movable up and down and from side to side. The amount of mobility depends of course on the presence or absence of adhesions developed with the surrounding structures. The tumor can never be reduced into the abdominal cavity no matter how much force is used. Sometimes taxis will reduce the size but this is due to reduction of the coexisting hernia, which will return as soon as the patient coughs or walks. Examination of the scrotum will show an empty atrophic bursa on the side corresponding to the inguinal growth.

As in all other malignant neoplasms, involvement of the lymph-

nodes occurs and should be looked for. In order to do this the patient should lie with the thighs flexed, breathing freely and deeply, in order to relax the abdominal walls, which otherwise would prevent a complete exploration. But since the adenopathy is deeply seated it is most frequently difficult to detect and unless the mass of glands is very large, the examination remains negative. The examination of the liver, spleen, and perhaps the kidneys, will occasionally reveal secondary malignant nodules.

By rectal examination the condition of the prostate and seminal vesicles will be ascertained. These organs never become the seat of secondary invasion in the affection under consideration, but Gosselin has recorded a case in which the rectum was involved.

When the inguinal tumor is developed the patient enters the stage of cachexia. Loss of flesh is considerable, strength and appetite diminish, the complexion takes on the characteristic straw-yellow color, the pain increases and death follows generalization of the disease before ulceration of the tumor takes place. In point of fact, ulceration is extremely rare and I am aware of only two instances where this occurred, one case being reported by Bardleben, the other by Deroubaix. The skin first becomes adherent to the growth, and finally ruptures. Sanguineous vegetations spread over the surface, giving rise to hemorrhage, which hastens the fatal outcome.

The entire duration of the affection when left to itself is difficult to determine, since I have only one record of such a case. In this case death took place six months after the tumor was first noticed, but the evolution is generally less rapid, and the majority of cases where the history was recorded were operated on only from several months to a year or more after the tumor was discovered. Michiels has pointed out an interesting peculiarity of malignant tumor of the testicle in inguinal ectopia; namely, that the gland increased in size by the neoplasm has a tendency to descend towards the scrotum as if to enter its bursa in the scrotum, but as this has undergone atrophy the tumor cannot enter and remains in the inguino-scrotal fold. I know of only one such case and this was reported some years ago by Binaud and Chavannaz.

It may happen that the testicle, after having come out of the external ring, becomes placed in front of the aponeurosis of the great oblique and thus assumes a variety of preinguinal tumor. Such cases have been published by Goma and Chavannaz and Michel.

Other than the difference of location of these two varieties, the symptomatology of the tumor remains the same as when the growth is in the inguinal canal, and the same may be said of the clinical evolution.

It goes without saying that the treatment of the ectopia is the prophylactic one, because it is an established fact that an undescended testicle is far more liable to malignant changes than when in the scrotum. If the patient will not submit to an operation, then he should at least be told not to wear a truss for the coexisting hernia, because the constant pressure on the testicle is a potent factor in the production of malignant changes. But castration or orchidopexy should be very strongly urged. The latter operation is naturally the one of choice if the subject is still under the age of puberty, that is to say as long as there is hope that the organ has not lost its functional activity. The testicle is exposed by an incision parallel to the long axis of the inguinal canal and can then be pushed into the scrotum and fixed there by suturing to the albuginea, or better still by Bevan's operation. The peritoneo-vaginal canal should next be closed and if an inguinal hernia also exists a radical cure is done at the same time.

In the adult the testicle in ectopia has parted with all physiological function, it is atrophied and its parenchyma undergoes a fibrous or fatty transformation which destroys the normal elements of the organ. This statement, based on histologic studies, has been fully confirmed by many others. Consequently, orchidopexy is useless, and on account of the danger of malignant change castration is quite proper, after which the peritoneo-vaginal canal is to be closed.

Let us now consider the case where a malignant change has taken place. Castration is the only resource but this operation is only justified under certain conditions. If the case is one of a recently developed neoplasm which is only slightly developed and has not contracted adhesions with the surrounding structures, if there is no secondary invasion of the inguinal or lumbar lymph-nodes, and if further the general condition is still good, castration can give very excellent results as I shall endeavor to show.

On the other hand, castration is contraindicated if the disease is advanced, when the tumor is large, with indefinite limits, adherent to the skin and immovable over the underlying structures. By this time the lumbar lymphnodes are involved, like-

wise the abdominal viscera. The operation is quite useless and would even hasten death.

The operative technique to be followed which is to my mind the most logical, is as follows. The incision is carried (supposing we are operating on the left side) from the external ring upwards to above and near the crural arch which it borders, then to the anterosuperior iliac crest from which point it is curved perpendicularly to the arch and stops about three centimeters from the umbilicus. On the right side the incision is made in an inverse direction. This is in reality a combination of the incisions of Cooper and Abernethy for ligation of the iliac and internal iliac arteries. But the incision I advocate here is carried higher up toward the anterosuperior iliac spine and is brought lower down, going beyond the pubis.

It is useless and even bad to prolong the incision too far on the scrotum because it exposes the wound to greater chance of infection. It should only be done when the tumor is large and adherent to the skin, which should be extensively resected along with the growth.

After having incised the subcutaneous cellular tissue and freely exposed the anterior aspect of the inguinal canal and its external ring, the canal itself is next opened up to its entire extent and the incision is then prolonged upwards into the muscular layer of the abdomen.

The cord is dissected out of the inguinal canal up to the internal ring. The posterior wall of the canal is then split and the internal iliac fossa is entered and is then freely exposed by peeling off the peritoneum as far as possible towards the small pelvis below and the lumbar region above. This peritoneal decortication can be more readily accomplished with the subject in the Trendelenburg position.

As the elements of the spermatic cord become dissociated at the level of the internal ring, the vas deferens going down into the small pelvis while the spermatic vessels slide over the anterior surface of the psoas muscle to reach the lumbar region, the vas and the vessels must each be taken care of separately starting from the internal ring.

After freeing these structures as far as possible, the vas deferens in the small pelvis, the spermatic vessels in the supero-internal portion of the iliac fossa or in the lumbar region, they are ligated separately and cut. This should be done between two

ligatures and it is well to touch the stump of the vas with the thermocautery.

Next the peripheral portion of the elements of the cord are completely isolated from above downwards in the internal iliac fossa and inguinal canal, care being taken to remove all tissue enveloping the cord. During this extirpation the internal iliac fossa should be inspected with care, recalling that there may be an infected lymphnode reposing on the external iliac vein just before the spot where the ureter crosses the vessel. One may also remove some juxta-aortic glands if they are enlarged and can be reached, by forcibly pushing back the peritoneum at the upper part of the fossa. By performing a very free ablation of the cord, one is necessarily obliged to remove the three small lymphnodes described by Cunéo in the route followed by the lymphatics of the testicle in their passage to the iliac fossa and which I have met with twice in the interior of the inguinal canal.

When isolation of the cord has been accomplished up to the external inguinal ring all that is necessary is to push from below upwards in order to detach and remove it at the lower part of the cutaneous incision. I repeat that if tension is great and the skin adherent, the testicle must then be delivered by extending the skin incision down onto the scrotum as much as required.

The operation completed, nothing remains but to suture the deep structures and skin. A Bassini is done on the inguinal canal, which is all the more perfect because there is no cord to transplant.

At the present time it is quite impossible to estimate the ultimate results of this technique, but I must refer in this connection to two cases. One patient is alive and well nine years after and has had two children in the meantime. The second case was operated on eight years ago and is alive at the time of writing.

On the other hand, referring to the older operations, I would here give the table published by Monod and Terrillon in their excellent book which appeared in 1899, where simple removal of the testicle with a portion of the cord lying in the canal was done.

Unknown ultimate results	18 cases.
Recurrence	15 cases.
No recurrence	2 cases.
Death in 2 months from acute phthisis	1 case.
Death in 5 months from dysentery	1 case.
Immediate and rapid death	7 cases.

There were then only two recoveries out of a total of thirty-

four cases. Of the successful ones, one was an instance of alveolar sarcoma and was well ten years after the operation. The second case was one of "reticulated carcinoma" who was still well at the end of four years. To this list I can add one other case, operated on by Monod, who was alive and in good health five years later.

What may we assume from all this? Since all these growths offer no pathological difference, we are forced to admit that the varying results are governed by the operative method employed. I have attempted to show why the operative technique described in this paper appears to me the best, as it fulfills the end to be attained and is also simple.

FOR THE AMERICAN JOURNAL OF UROLOGY

SEXUAL IMPOTENCY IN THE MALE

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[Continued from the August issue.]

AUTHORIZED TRANSLATION. EDITED WITH NOTES AND ADDITIONS BY
DR. W. J. ROBINSON

CHAPTER XXII—ETIOLOGY OF ABNORMAL SEMINAL LOSSES

THE question as to the etiology of the involuntary seminal losses is especially significant, since we can treat this affection successfully only after removing the primary cause.

Of course we meet great difficulties in the analysis of these cases, because we have only rarely to do with candid patients, but rather with men, who disclose this part of their life-histories very unwillingly to our gaze. Different causes also combine often in the same patient, so that it is often extremely hard to unravel the etiology of such a case.

I shall divide the causes of morbid seminal losses into three groups: (1) somatic, (2) psychic, and (3) functional.

I. SOMATIC CAUSES

To Peyer belongs the credit of having proved that in very many cases of spermatorrhea there is a purely mechanical, pathogenetic basis; namely, an inflammatory swelling of the

mucosa of the posterior urethra. Many patients have a pathologic condition of the excretory ducts of the seminal vesicles and the ejaculatory ducts, which consists in a loss of the muscular tone in these ducts, so that as a result they are always GAPING OPEN. Accordingly the contents of the seminal vesicles can flow out very easily during defecation, and also at the moment when the last drops of urine are pressed out by an energetic contraction of the perineal muscles. One can convince oneself at any time by a simple EXPERIMENT that in such patients the excretory ducts of the seminal vesicles gape open. If one introduces an elastic catheter into the urethra beyond the external sphincter and then lets a couple of syringefuls of a one per cent. solution of tannin flow under strong pressure through the posterior urethra, the strong current of fluid washes out the contents of the seminal vesicle through the gaping excretory ducts. When the patient is now requested to empty the bladder, he passes the injected fluid, in which large amounts of semen may always be demonstrated, precipitated in dense flakes by the tannin solution.

Inflammation of the posterior urethra, in addition to the purely mechanical causes of the spermatorrhea of defecation and urination, can produce involuntary losses of semen in still another way. The spinal genital centers can be stimulated by the peripheral irritation at this extremely sensitive spot, and diurnal and nocturnal pollution may be so produced. We shall mention later on the fact that some masturbators, to whom neither the imagination nor the mechanical friction of the external genitals gives a satisfactory sexual excitement, provoke voluntary seminal emissions by direct mechanical stimulation of the posterior urethra by means of foreign bodies.

We have also repeatedly heard patients with prostatic hypertrophy complain, that at the commencement of their "catheter life" every introduction of the instrument caused an extremely painful seminal emission, which affected sympathetically their already weakened organism.

The peripheral irritation, which is responsible for frequent pollutions, is frequently due to gonorrheal posterior urethritis. A large part of our sexual neurasthenics are recruited from patients, in whom the first signs of irritable weakness followed

an attack of gonorrhea. The acute, subacute, or chronic swelling of the mucosa of the posterior urethra resulting from gonorrhea and postgonorrheal processes, or an inflammatory focus in the neighborhood, namely in the prostate, must be considered as a peripheral irritation, which can produce pollutions, at first indeed only in sleep, but later also in the waking state. The sexual abstinence of long duration, to which our sufferers from gonorrhea are condemned, is a contributory cause of the frequent pollutions in sleep.

As soon as the central nervous organ has become irritated by the repeated seminal losses, the irritation can be much increased by other circumstances and lead to the severest forms of spermatorrhea and impotence. Quite often the permanent irritation, due to the congested and inflamed condition of the urinary organs of the sufferer from gonorrhea, finds its expression in a considerable increase of the libido, which is opposed by the command of sexual continence.

Medical treatment also represents a source of irritation, which must not be overlooked. Indeed all the methods of local treatment of the posterior urethra—the instillation of caustic and astringent substances, irrigation with warm solutions—and still more the mechanical methods, such as the passing of bougies and sounds and massage of the prostate and urethra, cause a very strong stimulation of the sexual centers in sensitive persons. This effect is so powerful, indeed, that we are accustomed to avail ourselves of just these methods for the treatment of atonic impotence. And many patients, whose urethræ are so treated for chronic inflammatory conditions, report to us that their sexual desire is greatly increased after each treatment, which results only too often in pollutions or masturbation.

Some of our patients actually informed us that the prostatic massage provided them with sexual satisfaction quite similar to that of masturbation.

The congestive hyperemia of the urethra and prostate is also the cause of the frequent pollutions occurring in many cases of prostatic hypertrophy.

Peyer considers the inflammatory swelling of the posterior urethra, especially of the caput gallinaginis, to be the cause

of manifold genito-urinary troubles, among others, of spermatorrhea, which follow masturbation and sexual excesses. We shall speak of this matter more fully later.

The effect upon the genital centers of diseases of the rectum may be explained in much the same way as in the case of inflammations of the posterior urethra. Lallemand especially shows most emphatically in his writings that the most various affections of the rectum, namely, hemorrhoids, fistulæ in ano, proctitis, parasites of the intestine, such as tape-worms, ascarides, etc., can be the primary cause of frequent pollutions and spermatorrhea. Proof that we must consider these pathologic states as the true cause of the spermatorrhea is furnished by Lallemand in his report of numerous cases of spermatorrhea completely cured by the treatment of these rectal affections.

It is a well-known fact, that an extremely LONG PREPUCE or a marked PHIMOSIS with accumulation of smegma and chronic balanoposthitis (inflammation of glans and prepuce) can be the cause of practicing masturbation, as well as of morbid seminal emissions.

II. NERVOUS AND PSYCHIC CAUSES OF MORBID SEMINAL LOSSES

It is extremely difficult in each individual case to draw the line between the normal and the pathologically increased libido. In any case, individuals with morbidly increased sexual desire incline more to the severe forms of spermatorrhea than men with normal or subnormal libido, since the former have a much greater temptation to excesses in their sexual life and accordingly are more liable to their injurious consequences.

The psychiatrists describe clinical states, which are associated with excessively increased sexual needs, with a true satyriasis. Certain phases in the course of progressive paralysis, of dementia præcox and of senile mental diseases are distinguished by a pathological exacerbation of the sexual instinct.

The impossibility which these patients experience of exerting these functions during confinement, and in other cases its impossibility resulting from loss of the erectile faculty and ability for coitus, in addition to the state of genital excite-

ment lead at first to frequent pollutions in sleep, and later to masturbation and diurnal pollutions, and finally to severe forms of spermatorrhea.

The inmates of prisons also fall easy victims to spermatorrhea and the exhausted states of urogenital neurasthenia, if they are dominated by very strong sexual needs. We shall speak more fully on this point when considering the etiology of masturbation.

Conditions of sexual erethism are almost the rule in the præataxic stage of *tabes dorsalis*. This erethism is almost always the immediate cause of some sexual abuse in sexual and, for want of better, of masturbation, pollution, and spermatorrhea.

Myelitis transversa is especially often the cause of relaxed pollutions and of spermatorrhea. Fürbringer noticed continual dropping of seminal fluid, a true "seminal flow" in one such case.

Cause and effect are often confused in the diagnosis of seminal losses observed in the course of mental and spinal diseases. In the exaggerated descriptions of onanism and its injurious effects the development of *tabes dorsalis* is regularly prognosticated to excessive masturbators. Thus a book by Johann E. Wickmann, much read at one time, expresses this idea in the very title, namely, "*De pollutione diurna, frequentiori sed rarius observata tabescentiæ causa*" (concerning diurnal pollution, a frequent, but rarely observed cause of *tabes*), (Göttingen, 1782).

Of course in reality the morbid seminal losses are never [I should not be so dogmatic. The word *never* must be used in medicine with extreme rarity and caution.—W. J. R.] the cause of *tabes*, on the contrary they are an accidental symptom of this spinal disease. Mental diseases, *tabes* and myelitis on account of a greatly increased sexual erethism often lead to venereal excesses and to extreme masturbation, and the latter cause in turn, pollutions and spermatorrhea.

The pathologic losses of semen, from which epileptics often suffer, also belong here; and here again the onanism and pollutions have been held responsible for the origin of the psychoneurosis.

It may be remarked here that Milton regards the frequent nocturnal pollutions as a sort of "local epilepsy," and supposes that the convulsive contractions of the seminal vesicles, prostate, and vasa deferentia, which cause pollution, are symptoms of this local neurosis.

In his evidence brought forward for this opinion he mentions a remarkable observation, not supported by other authors, that the atmospheric electricity has a great effect upon the origin of pollutions. Thunderstorms and other storms, especially in spring, are claimed to be able to produce pollutions in disposed individuals.

III.—FUNCTIONAL CAUSES OF PATHOLOGIC SEMINAL LOSSES.

Here we have to consider all the causes, which by irritation of the nervous centers for the sexual functions give rise to spermatorrhea in the widest sense. Such an increased irritability is described as inborn neurasthenia. And it certainly cannot be denied that there is actually a congenital or inherited nervous weakness of the genito-urinary organs. A whole series of symptoms of this inherited disposition may be recognized.

Infantile enuresis, which often occurs in families, is a sign of degeneration, which is often associated with the tendency to pollutions and masturbation, and is to be referred to this inherited nervous weakness of the urogenital centers. Experience also confirms the fact that nocturnal enuresis figures in the history of a great number of cases of sexual neurasthenia.

[Much greater stress should be laid upon this symptom than is generally the case. I make it an invariable point to ask every patient who complains of some sexual disorder whether he suffered from bed-wetting in childhood, and in a large percentage of cases the answer is—though occasionally after some hesitation—in the affirmative.—W. J. R.]

All these facts indicate that there exists a congenital disposition to nervous irritation of the sexual sphere.

Irritation of the spinal genital centers may also be acquired. The organic lesions in the brain and spinal cord, which can result in morbid seminal losses, have already been pointed out.

Such conditions of spinal irritation with a tendency to pol-

lutions and spermatorrhea are described in the convalescence from acute febrile diseases and in certain chronic infectious diseases (typhoid and tuberculosis). (Peyer.)

It has been repeatedly asserted that intense emotional excitement and intellectual over-exertion can irritate the central nervous organs to such a degree, that involuntary seminal losses can be produced.

Remarkable is the frequency of the statements of many patients, that they regularly suffer pollutions in solving difficult mathematical problems.

[I have a large number of patients with such histories. I have had a number of patients in whom the first diurnal pollution occurred during an examination. In some young men the nervous irritability during an examination, particularly during the solution of a mathematical problem, and particularly if they are afraid they will not get through in time, is so great that they are irresistibly forced to masturbate. —W. J. R.]

The basis for involuntary seminal losses may also be the far too little known neurosis, chronic nocturnal priapism, which was considered fully in another place.

The medicinal action of certain drugs upon the sexual system belong also to those causes of pollutions, which affect the nervous system. The continued use of the well-known aphrodisiacs, musk, cantharides, etc., can produce such an irritation of the spinal centers for the genital functions, that frequent pollutions and spermatorrhea result. Lallemand discusses the history of a man, to whom the use of cantharides had given such sexual excitement, that later the mere smell of the Spanish flies gave him involuntary seminal emissions.

Also shaking of the perineum in riding, driving and jumping can produce a tendency to spermatorrhea, when the closing apparatus of the seminal excretory ducts is insufficient.

The "Scythian disease," so often cited in the older works on this subject belongs here. Even Hippocrates and Herodotus inform us that in certain wild races as a result of immoderate and uninterrupted riding without a saddle the men acquire such severe spermatorrhea that they lose their virility relatively prematurely. Not only the male bodily characteristics

suffer in this affection; these men also become womanish in their habits. They are then called "anandri."

According to Herodotus this disease was regarded as a punishment, which the gods had laid upon the Scythians for destroying the temple at Ascalon. Hammond also observed a similar disease in recent times among the Mexican Indians. Severe somatic changes and alterations in character occur also among these men, ostensibly from spermatorrhea resulting from continual riding, so that they are hardly to be distinguished from the women; they are called "mujerados" (womanized).

It is true, it has been established that the principal cause for the sexual perversion of these men lies in the custom, that from religious motives certain men are early singled out for it, and by means of premature and artificial masturbation are brought into a condition of irritable weakness of the genitals. Then the continual riding on unsaddled horses does the rest to fully develop the severest forms of sexual neurasthenia with pollutions, spermatorrhea and impotence. The further desired result is then a perversion of the sexual impulse. These Indian customs remind one of the castrations performed for religious reasons, the Skopzen and the eunuchs of the Orient.

SEXUAL ABUSE is the most common cause of the spermatorrhea, which results from functional stimulation of the spinal genital center.

It is a much mooted question whether or not the injurious factor in the excessive demands upon the genital organs is the repeated loss of semen, this "most important fluid of the body" (Tissot) or not.

The above-mentioned author based his opinion, that the injuriousness of sexual abuse depended upon the immoderate loss of semen, principally upon the importance of this body-fluid, the lack of which in the eunuch produces such trenchant changes in the body and mind.

This "proof" is of course no longer admissible, since we know that the changes following castration do not depend upon the loss of semen, but upon the absence of the internal secretions of the testes, which independent of the making of semen produces the secondary male characters.

The frequent seminal losses in the misuse of the sexual organs, the losses of valuable body fluids, have only a subordinate importance in the origin of the severe disturbances of the entire organism in our sufferers from spermatorrhea.

It is not to be denied, however, that the so frequently repeated loss of this fluid, which is so rich in cells and proteid, must cause a certain weakening of the body, since this loss must be replaced by a greatly increased activity of the semen-producing organs of the body. This holds true especially in youth, when it is indispensable to conserve the body fluids for the needs of growth and bodily development.

The shocks to the nervous system, to which our patients expose themselves so frequently, and which are greater at each new seminal emission, play an incomparably more significant part.

[I regret to say that I am very skeptical as to the causal relationship between horseback riding and spermatorrhea. Where irritable sexual weakness already exists, excessive bareback horseback riding may aggravate this condition, but its injurious effect in perfectly healthy individuals is highly problematical.—W.J.R.]

Irritation of the spinal centers of longer or shorter duration in all forms of sexual abuse results from the increased demands upon the very sensitive nervous organs, and this favors the incitement to renewed irritation of the sexual organs. The stage of heightened irritation is followed here as in all excessively abused organs, by the stage of exhaustion.

Among our neurasthenics from sexual abuse the irritation stage manifests itself at the beginning in increased sexual excitability, which in spite of abundant natural satisfaction results in nocturnal pollutions. These may occur several times in one night, and produce the worst states of exhaustion in these patients. It is a complete mistake to advise such patients, as is often done, to indulge in normal intercourse as often as possible, "in order to drive out the pollutions." Such advice shows complete ignorance of the causal relations. It is possible in this stage to cure the severe states of exhaustion of these patients by giving the tired sexual centers time for

recovery, and by guarding them by temporary inactivity from the access of more injurious stimuli.

A state of sexual excitation at this stage of the affection, which produces an erection, ends more or less prematurely with the discharge of the second reflex act, ejaculation. The condition, so often named *ejaculatio præcox* results, in which the sexual excitement no sooner produces erection than it jumps over to the ejaculatory center. This form of impotence is also characterized by the absence of the orgasm, the voluptuous feeling, which normally accompanies the sexual act.

As the case becomes worse, the conditions of excitation pass over into those of paralysis.

The libido is in many cases much diminished, in some it quite disappears. The excitability of the psychosexual cerebral center is much diminished, the usual sexual stimuli no longer suffice to awake libidinous feelings.

In such cases the sexual instinct is awakened only by stronger stimuli. It takes an abnormally long time and requires the most various manipulations before erection is obtained. Finally, if the individual predisposition is present, the sexual desire may be aroused only by means of perverted stimuli. We have already spoken more at length on this subject in the chapter on Impotence.

Subnormal excitability may also come from the spinal genital center. Although the libido is normally preserved, or even much increased, the erections are so deficient that introduction of the penis becomes impossible. This condition may reach the point, where the ejaculatory center is excited before the erection has taken place. In this way the cases of *DIURNAL ATONIC POLLUTIONS* arise, where a sexual stimulus results almost at once in a seminal emission.

In the most severe cases all the functions of the sexual central and peripheral organs are paralyzed; libido is absent, erection and ejaculation fail, and of course with them all voluptuous feelings are gone. This is *PARALYTIC IMPOTENCE*.

(To be Continued)

FOR THE AMERICAN JOURNAL OF UROLOGY

A URETERAL PROBANG

A NEW INSTRUMENT FOR THE DISLODGE-
MENT AND REMOVAL OF
URETERAL CALCULI

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THE writer submits a description of a Ureteral Probang with apologies for failing to report a case in which the instrument was successfully used. It was devised for use upon a patient in Februray, 1913, who had a calculus in the lower part of the right ureter. Unfortunately for the successful demonstration of the instrument, the patient passed his stone a few days before the Probang was completed.

The idea of removing ureteral calculi by means of some intra-ureteral instrument is not new. Alberran some years ago attempted to use a balloon arrangement at the end of an ordinary ureteral catheter. Recently Cunningham has described an instrument for diagnosing ureteral calculi by means of the sound transmitted along an olive tipped wire which passes through an ordinary ureteral catheter. The tip of the wire stillete on this instrument has been efficient in dislodging calculi in several instances.

The success attained by Bransford-Lewis, Braasch, Young, and others, in removing calculi from the intravesicle portion of the ureter by means of the operating cystoscope should encourage any attempt to dislodge a stone high up in the canal, and either deliver it completely or bring it within reach of the operating cystoscope.

The description of the writer's instrument is therefore offered that it might, in capable hands, be used successfully for this purpose. The instrument consists of a No. six ureteral catheter through which runs a firm stiff wire. At the tip of the catheter the wire and catheter are united by a cuff of stiff bristles securely fastened and which can be made to spread out in a mushroom shape to any diameter up to .8 of a cm. by merely pulling on the opposite projecting end of the wire.

The following technique is suggested: The stone is first located by inserting a small catheter; then through this sufficient bland oil is injected to partly distend the canal. The probang is now inserted and without using dangerous force it is gently worked past the obstruction. The wire is now pulled out a little, thus opening the probang, and is fixed in position by means of a

screw or clamp at the outer end. Gentle traction is then made against the obstruction until it gives.



INSTRUMENT CLOSED



OPENED

The instrument should succeed in removing small or medium sized stones. It may dislodge a larger stone and bring it within reach of the operating cystoscope. Unless undue pressure is used in forcing the instrument past the obstruction there should be no danger whatever attached to its use.

So far as the writer can find in looking up the literature, there has been no similar instrument devised for this purpose. Yet it seems to be the desire of urologists to find some instrument which will obviate the necessity of many transperitoneal or lumbar incisions for the removal of ureteral calculi. Since the writer has made the instrument here described Eynards of Paris have gotten out an instrument (May, 1913) which is identical in every respect to the writer's; except that they do not use bristles for making the tip; yet the bristles make a firmer tip, less likely to bend backwards and let the stone slip.

The accompanying photograph will give one an accurate idea of the instrument used by the writer.

THE COMMANDMENTS OF MODERN URINARY PRACTICE

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IN every special branch of surgery, and especially in urinary practice, there are a number of simple truths, often overlooked, a sort of primary axioms which are of the greatest interest to the practitioner if he wishes to steer clear of errors of diagnosis, to avoid errors of technique and above all to prove equal to the responsibilities of prognosis.¹

¹ Monde Médical, April, 1913.

I have collected *inter alia* fifteen of these principles which I have deliberately termed "commandments," the better to indicate their important and imperative character.

I. Never pass a catheter the first time you see a patient unless compelled.

This first rule requires explaining. What I mean is that we must take every precaution when called upon to pass a catheter in a patient who has never before been catheterised. This little operation indeed is by no means a casual affair for many a patient has thus contracted the germs of infections of which he has subsequently had a vast amount of trouble to get rid of, thus justifying the saying that "the fear of the catheter is the commencement of wisdom."

In spite of every precaution the patient may become infected either by germs imported from outside or by exaggeration of the virulence of saprophytic microbes *in loco*.

Many a case of refractory cystitis in young women has been caused by inconsiderate catheterisation after labor, during the night, under unsatisfactory conditions of illumination in such wise that the instrument has come into contact with the vulva etc., before finding its way into the bladder. Similarly when, after chloroform, however skillfully administered, patients are unable to pass water.

The rule in such cases should be armed expectancy. We must try every means in our power to restore the ability to micturate, by hot compresses to the hypogastrium and if possible hot baths before having recourse to the catheter.

Similarly, when you see a patient for the first time never pass a catheter unless obliged to do so. Close clinical examination will almost always enable us to arrive at a diagnosis without the aid of the catheter and general data concerning the sensitiveness and contractility of the bladder can usually be obtained without it.

In this way we shall steer clear of attempts at catheterisation which only present difficulty because we happen to be dealing with a nervous timorous patient who may have passed several hours in the train, who is extremely impressionable, the instinctive contraction of whose membranous sphincter renders him peculiarly liable to abrasions of the mucosa, causing the escape of a drop of blood which is so dreaded by patients who are but too prone to allege a want of skill on the part of the practitioner.

II. Never Catheterise During an Acute Attack of Gonorrhea.

If it behoves us to fight shy of catheterising a patient who comes to consult us for some urinary affection, *a fortiori* must we avoid introducing a catheter when the urethra is the seat of an infection, especially the gonococcus.

There are practitioners who, under the impression that they are going to cut short a gonorrheal infection, instill nitrate of silver solutions into the anterior and deep urethra, the only good feature of which is the intention which prompts their introduction.

As a rule this procedure is the means of conveying the infection to the deeper parts giving rise to prostatitis and spreading to the neck of the bladder and ultimately to the bladder itself, in fact the urethro-prostato-vesical syndrome.

It is in these cases that we must make generous use of purely medical means (diuretics, the balsams and antiseptics) which often prove remarkably successful in allaying even severe inflammatory conditions.

III. Never Syringe the Anterior Urethra During the Acute Stages of Gonorrhea.

It sounds reasonable at the onset of an attack of gonorrhea to wash out the first, the scroto-peneal part, of the urethra which is the first to be attacked. Nevertheless it is not so and patients will later on have occasion bitterly to regret having allowed it to be done on the advice usually of friends or para-medical advisers.

This is indeed a wholly condemnable practice, for the pus may thus be washed back into the deep urethra which soon becomes infected in its turn. It would be far better not to have any treatment at all than to set up pathogenic irritations which are the source of infinite trouble in time to come.

IV. Never Dilate When There is Much Resistance.

A mistake often committed by the inexperienced is to dilate as much as possible in presence of a stricture. Whatever method be adopted it is a mistake based on non-observation of the rules of physio-pathology governing the mechanics of the canal. As I have already pointed out the urethra is not an engineering work and although, if we wish to enlarge a tunnel, the best plan is to scoop out the earth round about it, to enlarge a stenosed canal the best plan is to act dynamically, with every gentleness, with-

out force, so as to act more on the peri-canal than on the canal itself. The symptoms of congestion indeed play an important part and this is so much the case that a narrowed canal which yields to gradual dilatation gives quite contrary results if forced. For instance a patient who could pass water easily enough with a N^o 14 had retention with a N^o 16 introduced by forcing, much to his astonishment.

It is therefore for the practitioner to warn his patient that it is not his intention to push dilatation beyond a certain point and that he himself is the sole judge of the degree of dilatation to be attempted. There are urethrae which can be opened up to N^o 60 or more while with others we must not go beyond 30 or 40 and in arriving at a decision on this point the number of previous attacks of gonorrhea has to be borne in mind. Spiteful people say "everyone has the urethra he deserves."

V. Never Cocainise the Canal Without Urgent Reasons.

As far as I am concerned I have never introduced cocaine into the urethra and I hold with my teacher, Professor Guyon, that we ought not to use it.

Apart from the risk attending this kind of anesthesia there is no occasion for it, not only for a simple exploration but even for cystoscopy or some trifling operation on the organ. A patient who has pain when catheterised is the victim of bad catheterisation and if we follow closely the rules that govern catheterisation the patient is greatly surprised when it is all over to find how little he has felt.

It is a common practice abroad to employ cocaine for urethral interventions.

If we happen to be dealing with a particularly pusillanimous patient the mere instillation of a few drops of water, without saying what it is, has a most beneficial effect. On the same lines I can recall a case in which a patient who had been nephrotomised for renal tuberculosis and alleged absolute inability to sleep, was enabled to enjoy the most refreshing slumber by the aid of a nightly injection of camphorated oil labelled morphia.

VI. Never Omit Rectal Examination in Urinary Subjects.

Rectal examination, which is so unpopular with some practitioners, is however indispensable sometimes, especially in patients complaining of the lower genito-urinary tract. The little rubber finger stalls, which ought always to be carried in one's pocket,

are very useful for this purpose and deprive the intervention of much of its disagreeableness since they protect the fingers from contamination.

This examination is indispensable because it puts us on the track of the diagnosis and enables us to steer clear of gross mistakes.

With regard to the bladder this exploration enables us to estimate the pain due to catching of the neck on the pubis and the clearness of the ureteral points in the interstitial part of the canal.

With regard to the prostate it enables us to investigate the whole morphology of the gland from the point of view of size, consistency, external aspect and sensitiveness. Many a diagnosis of alleged prostatic abscess has in this way been disposed of and many a time has the diagnosis of urinary tuberculosis been confirmed merely by finding a large characteristic nodule at the junction of the bladder and the prostate.

In the aged too it enables us, in presence of large nodules permeating the organ as a whole, to correct the diagnosis of adenomatous prostate and substitute carcinomatous prostate which calls for vastly different measures, contra-indicates surgical intervention and justifies a grave prognosis.¹

Rectal examination is therefore a most useful procedure which may yield us invaluable information so that it must be regarded as indispensable in every case that comes before us.

VII. Always Explore With a Metal Sound When a Patient Complains of Pain in the Glans.

Spontaneous pain in the glans provoked by passing water is a pathognomonic sign, pointing almost of a certainty to stone in the bladder. A Paré recognized this and regarded it as such.

Consequently, whenever we meet with it, not of course in a young subject with blenorrhagia where it is customary for quite other reasons, but in middle-aged people, we must suspect calculus.

Consequently, when this symptom is associated with the other classical symptoms such as pain when riding in a carriage, sudden stoppage of the flow and cystitis, we must never omit to

¹ I do not refer to diseases of the vesiculæ seminales which are of no practical interest and which are for the most part tuberculous.

pass a metal sound or have recourse to cystoscopy. One is as useful as the other but the former is more within the reach of the average practitioner since it only demands a knowledge of the rules of catheterisation.

In this way I have discovered many a stone which had escaped the notice of experienced colleagues.

VIII. Always Resort to Cystoscopy in Doubtful Cases.

It would be almost blamable at the present time not to make use of such a simple and anodyne means of exploration as the cystoscope. After all it is little more than a catheterisation and is merely a question of interpretation.

Clinical medicine, which so long had everything its own way, must put up with seeing its domain curtailed, for the progress effected in this branch has been enormous, more has been accomplished in twenty years than in the previous twenty centuries.

There are indeed cases in which no diagnosis is possible otherwise than by actual inspection such as polypi, certain vesical tumours, foreign bodies, ulcers of doubtful nature, meato-ureteral signs indicative of renal disease and, lastly, rare conditions such as intra-vesical cystic dilatation of the ureter. I recently operated in such a case in a woman whose abdomen had twice been opened in vain, in which simple cystoscopy, taking only a few seconds, thanks to an exact diagnosis enabled us to remedy double intra-vesical ureteral dilatation one of the pouches being nearly three inches in length.

It follows that whenever we do not know we must propose cystoscopy which in most instances will give the key to the problem.

IX. Always resort to Cystoscopy in Hematuric Patients at a Suitable period.

This aphorism demands a few words of explanation. This is what it means: we must always have recourse to the cystoscope in cases of vesical hematuria *between* the bleeding periods so that we may be able to examine at our ease the nature and character of the tumour which is the cause thereof. On the other hand renal hematurics are to be cystoscoped during the actual bleeding, to begin with, because at first they are less profuse than the former and their discovery will enable us to decide which kidney is affected though this cannot be felt and causes no pain.

X. Always Radiograph the Upper Urinary Apparatus in Renal Cases of Uncertain Diagnosis.

Leaving on one side the lower part of the genito-urinary tract for which cystoscopy and the metal sound amply suffice and are even preferable, radiography should always be proposed in cases of renal pain, with or without pyuria or hematuria, which present any difficulty of diagnosis. Having easily excluded tuberculosis and cancer, leaving the diagnosis hesitating between tension hydronephrosis, congestive lithiasis and true calculosis, radiography will enable us to dispel any lingering doubt on the subject. So important is its aid that no surgical department can be regarded as complete in the absence of facilities for rapid radiography.

The procedure is easy enough and only calls for a trained hand in order to steer clear of errors of interpretation which for that matter are familiar to every experienced specialist. Investigating the shadows of the peripheral outline of the kidneys and the line of the psoas, the clearness of the bony framework and the curved image of the renal catheters are so many guides which enable us to decide diagnoses in a way previously unattainable. We are too proud of these novel methods which are at once our joy and our pride not to advocate recourse thereto with all our might.

XI. The Tuberculous Kidney is a Small Kidney; Not Palpable and Not Painful.

It is a common experience to hear it said *à propos* of a patient suspected to be suffering from renal tuberculosis of the ulcero-cavernous type "It is not possible, he has never complained of his kidneys." On the contrary it is a reason the more, though a negative reason, in favour of renal tuberculosis, an essentially treacherous disease which may only be manifested by more or less marked cystitis. It must therefore be repeated to satiety that the tuberculous kidney is most often a small, non-palpable and non-painful kidney.

When we operate it is on the strength of data furnished by exploration and a knowledge of the laws of urea but, clinically, apart from the pyuria which it has in common with many other affections, there is nothing renal to incriminate.

XII. Evening Hematuria is Always a Calculous Hematuria.

Presented in this form our aphorism may excite discussion. I mean by this that hematuria which comes on of an evening is usually bleeding provoked by the day's work so that it may fairly be opposed to spontaneous hematuria due to tumor. Radiography for the kidneys and metal sound exploration of the bladder will enable us to localise the stone, affording information as to its shape, its nature and the number present.

XIII. Never Make Use of Silver Salts in Urinary Tuberculosis.

Nitrate of silver, this remarkable product in common affections of the urinary apparatus, which has such brilliant results to its credit, is altogether contra-indicated in specific affections of tuberculous origin.

It may even prove a touchstone in presence of errors of diagnosis because affections of this kind get worse when it is used. The tuberculous bladder bleeds and is reduced in capacity and is the seat of much more pain after an instillation of nitrate so that it is imperative that we should make a causal diagnosis before employing it.

XIV. Tuberculous Urine is Never Ammoniacal.

The odour enables us to characterise certain specimens of urine and thus to arrive clinically at a prompt diagnosis.

A urine which has an ammoniacal odour cannot possibly be tuberculous even when other symptoms, such as an absinthe or soapy aspect, might lead us to suspect this to be the case.

Tuberculous urine has no odour whereas ammoniacal urine is a retention product usually met with in incontinent subjects with stricture or in old-standing prostatics who do not empty their bladder.

To sum up, we hope this article will interest the medical practitioner into whose hands it may fall. If it be the means of impressing upon his memory in a schematic form what he should do and what he should not do it will increase his practical acquisitions with some valuable hints.

REVIEW OF CURRENT UROLOGIC LITERATURE

JOURNAL D'UROLOGIE

Vol. III., No. 3, March, 1918

1. Clinical Value and Interpretation of the Ureo-Secretory Constant. By F. Legueu. P. 289.
2. Cystoscopy in Cases of Vesical Calculi. By G. Marion. P. 311.
3. Vesical Calculi and Direct Vision Cystoscopy. By Jean Ferron. P. 319.
4. Early Diagnosis and Intervention in Renal Tuberculosis. By Louis Bazy. P. 323.
5. A Case of Cystitis in the Course of a Scarlatina. By R. Ducastring. P. 329.
6. A Procedure for the Radical Extirpation of Cancer of the Prostate. By Drs. Gayet, Champel, and Fayol. P. 333.
7. Removable Attachment for the Immobilization of Cystoscopes. By G. Marion. P. 351.
8. Prophylaxis of Gonorrhea in Men and Women. By Jules Janet. P. 353.

1. Clinical Value and Interpretation of the Ureo-Secretory Constant.

Legueu has had clinical experience with the coefficient of Ambard. He describes his technic in obtaining this constant and goes on to mention certain factors which cause this figure to vary from the normal (0.07). Among these conditions are fever, diabetes, and especially hydropigenic nephritis, which by decreasing the azotemia (by diluting the urea in the blood) causes an artificial diminution in the constant. In cases of renal surgery (e. g. tuberculosis) where ureteral catheterization has been done but where there is doubt as to whether the lesions are bilateral or not, the constant is of great value, for if it is above 0.120 the disease is usually bilateral, whereas if it is less than 0.110 the condition is unilateral. In other words the constant may be used as an indication for, or contraindication against, operation in cases where the other evidence is inconclusive.

The constant is also of value in non-renal cases such as prostatectomies for in such patients the kidney function is very commonly depressed. With the aid of this formula Legueu has found that the excretion of urea is profoundly compromised during the days immediately following the operation and has been able by this means to follow accurately the effect of treatment on the kidney function. The following figures may be of value in deciding the operability of prostatic cases: 1. If the constant is 0.200 or over, operation is out of the question. 2. If it is 0.120 or less, operation may be undertaken with good assurance of safety, for although this figure would contraindicate nephrectomy it does not prevent prostatectomy, as both kidneys remain untouched in the latter. Azotemia in this class of cases is 0.50 or less (normal). The ability of the kidney to excrete water must however, be independently considered for this factor is not taken up in the estimation of the ureo-secretory constant. 3. If the constant lies between 0.120 and 0.150 and the azotemia varies between 0.40 and

0.70, no arbitrary rule can be given and each case must be decided on its merits.

2. Cystoscopy in Cases of Vesical Calculi.

Marion publishes two plates in colors (12 figures) of calculi as seen through the cystoscope. He concludes that cystoscopy is the best means for the diagnosis of calculi. In addition, valuable information is obtained as to the condition of the bladder wall, and the therapeutics as well may be directed by these findings. Finally, cystoscopy is a *sine qua non* after lithotripsy in order to establish the fact that no fragments or even entire calculi were left behind at the operation.

3. Vesical Calculi and Direct Vision Cystoscopy.

The author reports two cases of lithiasis in which the Luys direct vision cystoscope was used to advantage. The first case was that of a woman of 51, who had a severe calculous cystitis. Lithotripsy was done but the temperature began to rise following the operation. Direct vision cystoscopy allowed of the removal of four fragments of stone and of the core of an abscess. Recovery.

The second case was that of an old man of 68 who had absolute retention of prostatic origin, and numerous vesical calculi. Two large Luys tubes, Nos. 55 and 58, were used and a urethral forceps like that of Kollmann. The patient was put in Trendelenburg and as each stone was seized the cystoscope was withdrawn and then reintroduced. Twenty-four calculi were extracted in this manner, a meatotomy being necessary for the removal of the larger ones. The entire procedure was done under one per cent. stovaine anesthesia.

4. Early Diagnosis and Intervention in Renal Tuberculosis.

The patient was a governess of 27 who noticed blood in her urine following an exhausting bicycle ride. For a long time preceding this there was nocturnal (not diurnal) polyuria. In addition, although the urine was not cloudy, it had lost its normal brilliant lustre. All these clinical signs, according to Bazy, point to tuberculosis. Both ureters were catheterized on two successive occasions and the results of the urinary examinations showed the presence of pus and tubercle bacilli on the right side. Operation was decided upon and a right nephrectomy was done, despite the externally healthy appearance of the kidney on the operating table. On sectioning the organ there was a small ulceration on a papilla near the upper pole. Besides the existence of a small fistula leading to an adjacent papilla there was no abnormality. The author emphasizes the value of his clinical signs in establishing an early diagnosis.

5. Case of Cystitis in the Course of Scarlatina.

A young man was admitted to the hospital and ran a rather typical course of scarlet fever, distinguished only by a severe gastro-intestinal disturbance and a mild attack of epistaxis. Desquamation was going

on when the patient suddenly began to complain of burning and sticking sensations in the urethra and increased frequency of urination. The urine contained pus. Local and medicinal treatment was instituted toward the improvement of the bladder condition but it was only after a lapse of four months that the patient was cured.

The author points out that in this case the scarlatinal virus (by the intermediation of secondary infections) seems to have affected the mucous membranes especially. Thus not only was the pharyngeal mucosa irritated (angina of onset), but the intestinal (diarrhea appearing at the time of the cutaneous eruption), nasal (epistaxis), and finally the vesical (during the stage of desquamation) mucosae were also involved.

8. Prophylaxis of Gonorrhea.

As summarized by Janet, the procedure for a man would be:

1. If possible, fill the meatus with vaseline before coitus.
2. After coitus urinate while rubbing the glans in order to cleanse the meatus and fossa navicularis.
3. Wash the parts carefully with soap and water.
4. With the aid of the samariter (of Dr. Blokusewski) instil two drops of 20% argyrol into the fossa navicularis.
5. Paint the lips of the meatus and the grooves of the frenum with argyrol.

The above to be carried out as soon as possible after each exposure.

With the woman prophylaxis is much more difficult. The rules in this case would be:

1. Before exposure introduce into the vagina a sponge or rubber hood to protect the cervix.
2. Smear the meatus and orifices of Bartholin's gland with vaseline.
3. After coitus, urinate.
4. Wash the parts externally with much soap and water.
5. Make a copious vaginal injection of bichloride, 1:4000.
6. Wash externally with same strength bichloride.

JOURNAL D' UROLOGIE

VOL. III, No. 4, APRIL, 1913.

1. Hypertrophy of the Left Heart as shown by Orthoradioscopy at the Onset of Hypertension of Renal Origin. By F. Vidal and G. Raulot-Lapointe. P. 425.
2. New Means of Diagnosing Renal Tuberculosis. By Leo Buerger. P. 431.
3. Surgical Treatment of Calculi in the Pelvic Portion of the Ureter. By G. Lemoine. P. 441.
4. Study of Calculi of the Intraparietal Portion of the Ureter. By Salvador Pascual. P. 447.
5. Hydropyonephrosis with Calculi; Almost Complete Congenital Absence of Kidney. By G. Marion. P. 469.
6. A Rare Instance of a Large Vesical Diverticulum Filled with Calculi. By Drs. Nogier and Reynard. P. 475.

7. Urethral Polypi. By Drs. Uteau and St.-Martin. P. 481.
8. Technique of Hypogastric Prostatectomy. Use of a Finger Enucleator. By Dr. Bensa. P. 483.
9. Apparatus for the Cystostomized. By Drs. Badin and Uteau. P. 489.
10. Injection of Gas into the Bladder. By Jean Ferron. P. 491.
11. Precautions and Treatment During the Incubation Period of Gonorrhea. By Jules Janet. P. 493.
12. Modern Treatment of Ruptures of the Urethra. By G. Marion. P. 495.

1. Hypertrophy of Left Heart at Onset of Renal Hypertension.

The authors have studied orthodiagrams of cases of nephritis with and without high tension. They come to the conclusion that in the course of certain nephritides there is an early modification in the shape of the left ventricle which can be seen at a radiosopic examination and measured very exactly by orthodiagraphy even before clinical examination can reveal any change whatever in the dimensions of the heart. This peculiar change consists in a bulging of the middle portion of the left ventricle. It precedes any change in position of the apex beat, seems to be in close relationship with the existence of arterial hypertension and constitutes, in short, the first stage of the morphological changes undergone by the heart in the course of arterial hypertension of renal origin.

2. New Means of Diagnosing Renal Tuberculosis.

Burger reports a case of renal tuberculosis in which the diagnosis could be made positively only by removing some of the vesical mucosa at the ureteral opening with his punch forceps (introduced through the operating cystoscope) and examining the tissue microscopically. Tubercles were found, mainly in the submucosa.

The author concludes: (1) that this method can enable us to arrive at a definite diagnosis when other methods are inconclusive. (2) Miliary tubercles may be present in the mucosa when the naked eye appearance is merely that of an edema. (3) At the beginning of the disease a tuberculous focus may localize only at the ureteral orifice of the affected kidney, even when the pelvis and ureter are not infected. (4) It is necessary to perform an operative biopsy through the cystoscope whenever the objective signs are sufficient to warrant the presence of renal tuberculosis, also when tubercle bacilli have not been discovered in the urine, and in fact whenever positive signs of renal tuberculosis are wanting.

3. Treatment of Calculi in the Pelvic Portion of the Ureter.

Lemoine reports a case of stone in the lower part of the ureter which he failed to reach by the trans-vesical route. He then made an incision along the course of the ureter and milked the stone upward toward the kidney, where he finally performed a nephrectomy and ureterectomy.

In general, when a stone is suspected to occupy this inaccessible position, tests should be made to determine the mobility of the calcu-

lus before operating. To this end we may employ successive X-ray pictures, ureteral catheterization alone, or ureteral catheterization together with X-ray examination. Attempts may be made to dislodge the calculus by injections of glycerine, by forceps introduced through the cystoscope, by dilatation of the ureter. In some cases meatotomy of the orifice may be performed.

The methods of approach are either transvesical or subperitoneal. The latter include (1) the inguinal incision resembling that used for ligating the common iliac artery; (2) the iliac, like that of Roux for appendicitis or that of Israel and Albarran when prolonged upward and downward; (3) the "L"-shaped incision of Rafin, the vertical part of which corresponds to the median hypogastric section, the transverse limb being continued from the lower extremity of the first and dividing the corresponding rectus.

In the cases where the stone moves up to the kidney, pyelotomy may be done if there is no infection. If, however, infection is present, the choice must be between nephrectomy alone or nephrectomy with drainage.

4. Calculi of the Intraparietal Portion of the Ureter.

Pascual presents an interesting study of these calculi. Their symptomatology, he claims, is characteristic, the most prominent features being bladder troubles which would lead one to believe the patient to have cystitis. Other symptoms are pains resembling those of renal colic, local pains at the point where the stone is lodged, symptoms of hydro- or pyonephrosis-anuria. Cystoscopy generally reveals a ureteral orifice surrounded by edema, or prolapsed. By means of radiography and ureteral catheterization the position and size of the calculus can be determined. Once the stone is located it should be extracted through the natural passage if this is possible, otherwise a suprapubic section should be done.

5. Hydropyonephrosis with Calculi.

Marion reports the case of a man who suffered with pain in the right renal region, with occasional attacks of hematuria, and later with bladder disturbances. Despite repeated examinations no tubercle bacilli were found in the urine. X-ray picture, however, showed two calculi situated low down in the costo-iliac space. A diagnosis of calculous pyonephrosis was made.

At operation a dilated ureter was found. There was no trace of a kidney. On sectioning the ureter and following it upward a collapsed sac was found containing the two calculi. This was a much dilated pelvis. It was removed and pathological examination revealed the presence of a small portion of secreting renal tissue. Originally the hydronephrosis probably resulted from a congenital stricture of the ureter. The kidney was presumably small from the beginning, and rapidly atrophied under the constant pressure.

6. Large Vesical Diverticulum Filled with Calculi.

The patient was an obese old man who came into the hospital with symptoms of urinary obstruction. Rectal palpation showed a normal prostate but revealed a large mass apparently in the bladder wall above the left lobe. Introduction of a metal exploratory sound into the bladder gave a grating sensation. Cystoscopy showed a stone free in the bladder, but there was also a mass projecting up from below on the left side. Radiography showed the stone seen on cystoscopy on the right, and a large opaque mass on the left. A second X-ray, after injection of collargol into the bladder, caused the first stone to be obscured by the collargol but left the shadow on the left free from contact (except at one point) with the silver solution. The interpretation of these findings was: intravesical calculus together with a large calculus in a diverticulum communicating with the bladder by a narrow orifice.

Suprapubic section was done and the findings were as expected except that instead of there being one large stone in the diverticulum there were eight small ones.

7. Urethral Polypi.

The patient was a young man suffering from an intractable chronic gonorrhea. A sound passed into the bladder met with a fold-like obstruction in the posterior urethra. Urethroscopy showed that below and to the left of the verumontanum there was an almost sessile polyp the size of a small pea, bright red in color. On withdrawing the instrument a second polyp was seen. This was a fine body, $\frac{3}{4}$ cm. long, freely movable and bleeding. The polypi were burned with the actual cautery. The urethral discharge ceased completely after this treatment.

8. Hypogastric Prostatectomy with Finger Enucleator.

The enucleator is a half thimble with a sharp point. With this instrument the gland can be removed more quickly and thoroughly than with the finger alone and the danger of hemorrhage and subsequent infection is much less.

9. Apparatus for the Cystostomized.

The intravesical part of this apparatus consists of a rubber mushroom like a large Pezzer sound. The tube of the mushroom leads to the exterior and through it the urine is drained. Resting on the abdominal wall around this tube is an inflatable rubber collar which, when distended, keeps the apparatus in place and absolutely water tight.

10. Injection of Gas into the Bladder.

Ferron feels that the advantages of air distention of the bladder far outweigh the disadvantages despite the fatal cases reported (air

embolism). To minimize the danger, however, he uses a pump with valves so arranged as to prevent too rapid a distention of the bladder and the occurrence of an abnormally high pressure sufficient to allow of absorption of gas into the veins.

11. Incubation Period of Gonorrhea.

Janet recommends prophylactic treatment after every suspicious intercourse. The incubation period he sets at 8 days and he believes that prophylaxis may be accomplished at any time within these limits by the following procedures: Lavage of the meatus, of the fossa navicularis and the anterior urethra with oxycyanate of mercury 1 to 4000. Argyrol 1 to 300 as a lavage or 1 to 10 as an injection is equally serviceable.

In women the same solutions should be used to disinfect the urethra, the para-urethral glands and the cervix. The orifices of Bartholin's glands should be touched with tincture of iodine.

12. Modern Treatment of Ruptures of the Urethra.

Marion lays down the following rules:

1. Ruptures of the urethra not followed by retention and not accompanied by tumefaction or severe urethrorrhagia, and purely interstitial ruptures, need no treatment.

2. All other cases should be subjected to immediate intervention.

3. In the presence of a urethral rupture all explorations and catheterizations should be avoided. These only lead to infection. If there is retention and it is impossible to intervene at once, recourse should be had to suprapubic puncture of the bladder.

4. Treatment consists in sewing the extremities of the canal together and diverting the urinary current by means of cystostomy in order to avoid infection by a permanent catheter.

FOLIA UROLOGICA

VOL. VII, No. 7, MARCH, 1913.

1. Tuberculosis of the Prostate. By Arthur Götzl. P. 399.
2. Vesical Cysts. By R. Hottinger. P. 453.

1. Tuberculosis of the Prostate.

Tuberculosis often affects the prostate gland. A primary localization in this organ is not proven. Theoretically of course it cannot be denied. It is very likely that catheterization with non-aseptic instruments is responsible for many infections.

Secondary infections may come about through the blood, the lymphatics, or by contiguity. The four urogenital organs which are preëminently the seat of hematogenous tuberculous infections are the kidney, the prostate, the seminal vesicles, and the testicles. As with the other organs, the prostate may be infected through the blood stream, either secondarily or perhaps primarily, as being the only or-

gan of the group whose resistance is diminished, or else it may be infected simultaneously with or before the others.

Secondary infection through the lymphatics always takes place in the direction of the current. Infection by contiguity always comes from one of the other four urogenital centers. Baumgarten's law that the infection follows the secretory current is practically positive for the uropoietic system. As regards the genital system, however, infection against the current may take place, and in one of the author's cases the infection spread in both directions.

Tuberculosis of the prostate occurs most frequently during the period of sexual maturity, nevertheless it may exist during infancy or old age. Chronic posterior urethritis is a far more important factor in localizing the disease in the prostate than is any other cause, such as trauma or excessive coitus.

Pathologically tuberculosis behaves just the same in the prostate as it does in the other organs. The author has seen two cases in which the gland was entirely caseated, in another case tubercles were spread as far as one-quarter of a centimeter outside the gland, in another the two lateral lobes were transformed into a large cavity, in still another case the prostate was entirely gone and its place taken by a large, suppurating cavity. Tuberculous prostates may show a tendency to decapsulization and calcification, or else secondary infection may supervene and abscesses be formed which may point toward the bladder, the rectum, the urethra, or most commonly, the perineum.

As regards the diagnosis, it is safe to regard every discharge which either never showed gonococci from the beginning or which persisted after gonococci disappeared, as suspicious, and such discharges should be examined for tubercle bacilli. Rectal examination usually shows a hard prostate, nodular, painful, with soft spots into which the finger may sink as into a cavity. Endoscopy may be of value in the diagnosis. At times the two types of anterior urethritis described by Oberländer may excite suspicion.

Treatment should be radical. General treatment, as well as local injections and tuberculin treatment, has proved unsatisfactory. Sometimes good results may be obtained by the cauterization of fistulae and the curettage of the gland. In general, however, prostatectomy is indicated and the perineal method is the operation of choice. When this is impossible the vasa deferentia should be tied off.

2. Vesical Cysts.

Hottinger reports a case of cyst of the anterior wall of the bladder. The growth was the size of a cherry and caused trouble with urination. Cystostomy was done and the cyst extirpated. The patient was cured.

The condition probably originated from a bladder gland which was inflamed. Similar cases have been observed by Brongersma, Nitze, Bosch, van Houten, and Bruckhardt.

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A CASE OF SPONTANEOUS FRACTURE OF AN INTRA- VESICAL CALCULUS.

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THE subject of spontaneous fracture of intravesical calculi, though chiefly of academic interest, merits attention inasmuch as the entire matter is bound up with the history of many attempts to dissociate bladder stones by fluids, cautery, manipulation, etc. Just why some calculi should be capable of spontaneous dissociation remains as much mystery as ever; it is difficult also to explain the sequence of order that spontaneously ruptured stones maintain, the definite relationship between this tendency to break up of their own accord and the chemistry of these calculi, and lastly their ability frequently to defy disintegration under artificial and seemingly favorable conditions.

Up to 1904, for a period covering 309 years, Englisch² was able to gather and report 102 cases of spontaneously fractured intravesical calculi. Some of these cases, notably the early ones, possess meagre details of the clinical and chemical findings and so make uncertain the true conditions that may have prevailed; the recent histories, however, give full data and leave no room for doubt. All in all these cases give Englisch material from which to deduce the following characteristic points which, he claims, obtain in every true case of spontaneous rupture of a bladder stone:—

1. These stones are nearly always bladder stones. Almost never does a kidney or pelvis stone undergo self disintegration.

¹ From the Genito-urinary service of Mt. Sinai Hospital, N. Y.

² Archiv. für Klin. Chirurgie, 1905.

2. In a striking majority of instances these calculi consist of uric acid or of uric acid and some other salt.³

3. The fragmentation assumes a radial order so that the segments are pyramidal or wedge shaped.

4. Only the flattened calculi, for some reason, possess this tendency to break up.

5. Coincidentally, one often finds present other stones which show incomplete fragmentation.

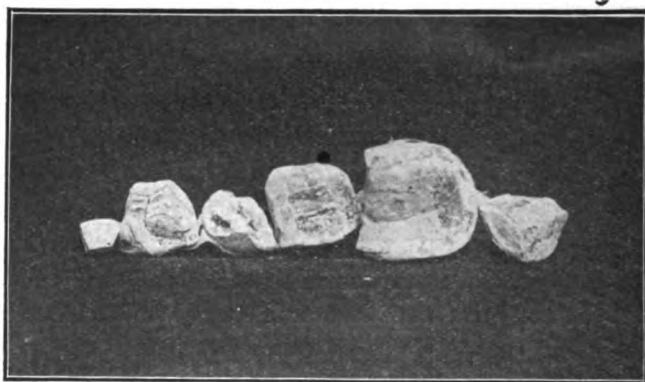


Fig. 1. Shows fragments of fractured calculus attached to one another by a small piece of adhesive plaster.

This case was observed in the service of Dr. Beer at Mt. Sinai Hospital and is reported by his courtesy.

The patient was a man of 70 years who had had dysuria and frequency for five years and one attack of hematuria two years prior to his admission. During the last year he had passed gravel on several occasions, small firm pieces, some smooth, others rough edged. There was no history of any renal or localized colic. He had not been instrumented. On examination he was found to be a well preserved man with practically negative findings except for a rather moderately enlarged prostate. His X-ray plates were negative for calculi. Cystoscopy revealed an inflamed bladder with many calculi. One stone was about one inch in diameter; another was fractured but showed its nucleus unbroken. A suprapubic cystotomy was performed by Dr. Beer and about one

³ In the English series:

55 cases were uric acid stones.

10 cases were stones of uric acid with some other salt.

8 cases were exalate or phosphate stones.

29 cases made no mention of the chemistry of the stones.

dozen stones of various sizes and shapes evacuated. One calculus showed incomplete fragmentation; one was completely fractured, the nucleus remaining intact. Chemically the stones were made

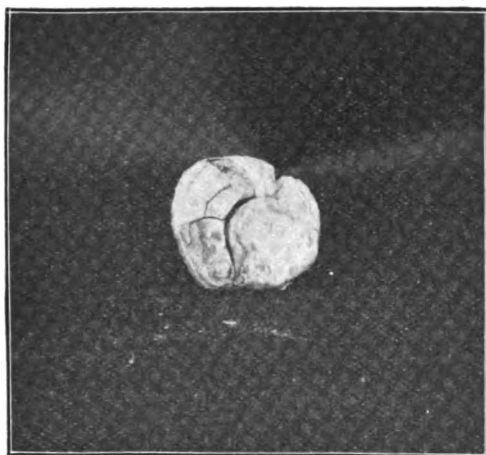


Fig. 2. Shows fragments placed in their proper position, reconstructing the original stone.

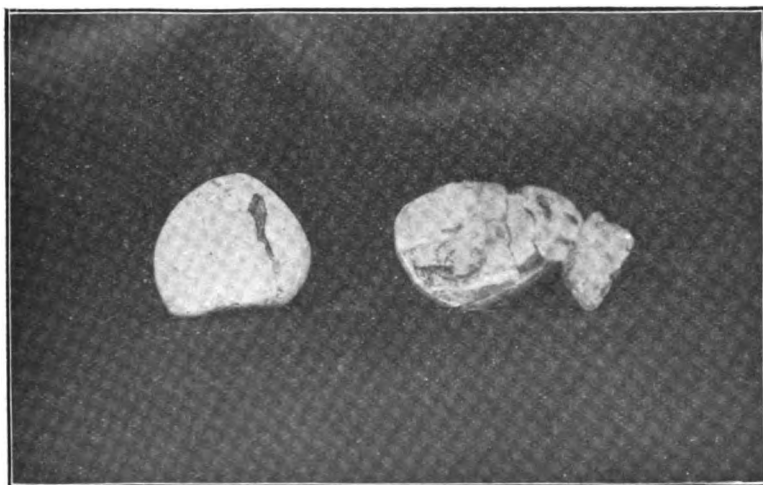


Fig. 3. Shows the spontaneously fractured calculus with one fragment everted so as to demonstrate the articulation of the other fragments. The unbroken calculus shows beginning fissuring, perhaps, preliminary to a fracture.

up of uric acid with sodium and potassium urates. Subsequently, these stones were placed upon the abdomen of a patient and X-rayed. No photograph was obtained.

Examination of the removed calculi showed:

1. The loose, small segments—6 in number (Fig. 1.)—were readily reconstructed into one well fitting stone (Fig. 2.) about one inch in diameter with the intact nucleus at the center.

2. The planes of fragmentation had occurred in a radial order (Fig. 2.).

3. The separate fragments were wedged shaped, the narrow surface lying upon the nucleus, the broader entering into the circumference of the stone.

4. The reconstructed stone proved to be flattened from side to side.

5. One other stone showed beginning fragmentation (Fig. 3.).

6. The bladder calculi were made up chiefly of uric acid.

In addition it should be mentioned that these stones could not be diagnosed by X-ray but were clearly seen during cystoscopy.

Here then is a case, which in striking measure, presents the characteristic findings to be observed in a bladder stone that has spontaneously fractured.

FOR THE AMERICAN JOURNAL OF UROLOGY.

REMOVAL OF URETERAL CALCULUS BY DILATING URETER

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SINCE the advent of new cystoscopes, and the wonderful improvement made on the old models, it is no longer necessary for all patients suffering from ureteral calculi to undergo surgical operations for the removal of these stones. The Garceau cystoscope which admits the passage of a No. 11 F. catheter is often the means of removing such stones with very slight discomfort. The Garceau cystoscope resembles the Wappler and the Brown-Buerger cystoscope, except for the catheter opening in the obturator.

The case I here mention is a case who had consulted several surgeons, had several X-ray examinations of his ureter, which showed the stone, etc., and all had agreed that it could not be removed from the ureter except by surgical means.

MR. L. B. AGE 32; MARRIED

Previous History:—Gonorrhea eleven years ago. Malaria two years ago, otherwise health had been good. Family History negative. *Present history.* Began two years ago with renal colic, which would only be relieved by opiates. These attacks would come on sometime twice a month, sometime oftener, and would often mean from several days to one week in bed.

Examination:—Bladder washed out twice with warm boric solution, then urethra anaesthetized with 2% novacaine solution—a small nitze examining cystoscope was first used to explore the bladder. Bladder mucosa normal.

Trigone internal vesical sphincter and ureteral ridges and spaces show no sign of inflammation.

Left ureteral opening normal in appearance and functioning normally.

Right ureteral opening gaping open, and just above it is seen a bulging in the ureter, the function of this ureter is impaired, and the urine instead of flowing or coming out in a gush, comes out in a trickle and in a tiny stream.

The small Nitze cystoscope removed and a Garceau cystoscope introduced in its place. The right ureteral orifice again located, and a Garceau catheter inserted in cystoscope, this was passed into ureteral opening, but met with an obstruction about one-half inch from bladder. The catheter was withdrawn and again passed into ureter, this time keeping the lever of the cystoscope up to its full extent, steady pressure was kept on the catheter, when suddenly the catheter passed in, the lever was then lowered and the catheter passed up to the kidney pelvis, then the pelvis was filled by means of gravity from a burette, with sterile olive oil. The catheter was then slowly withdrawn, and after it was removed from the ureter, the ureteral orifice was kept directly in the field and closely watched. Just four minutes after the removal of the catheter, the stone came down and presented in the ureteral opening. A pair of McCarthy flexible forceps were then passed through the cystoscope and the stone grasped and removed. It was found to be a small stone about the size of a pea, and shaped very much the same.

Another skirograph was made and no stones were present either in the bladder, ureters or kidney pelvis. The patient has never lost another day from his business and thus far seems to have no signs of a recurrence of calculi.

NON-INFECTIVE POSTERIOR URETHRAL CONDITIONS AND THEIR TREATMENT

BY MAXMILLAN STERN, M.D.

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AMONG the most intractable of genito-urinary patients are those with a chronic posterior urethral disorder.

Since the curved endoscope and cysto-urethroscope have come into more general use the posterior urethra has been better studied, and many departures from the normal are now described and recognized. It is not my purpose to enter deeply into the many pathological conditions peculiar to this region but to refer particularly to the non-infective forms.

That portion of the urethra under consideration comprised a short length of membranous tube measuring only three centimeters, and presents on its floor an eminence, the colliculus, with the orifice of the ejaculatory duct on its summit, and at the sides of its base the orifices of the prostatic ducts.

The pathology of the prostatic urethra is for the most part dependent upon circulatory changes. A "vicious circle" exists here which begins early in life and seems to enter as a factor in nature's purpose; the propagation of the human species. Passive hyperemia of the posterior urethra accompanies early sexual impulses and becomes active when these, either through natural or artificial means, arise frequently until in time a condition of persistent hyperemia or congestion, as it may now be termed, is established. A chronic state of irritation results, and sexual impulses now emanate from the slightest exciting cause, aggravating the original congestion. This disorder is of long duration as a rule, and terminates either by the restoration of normal conditions through proper treatment and corrected sexual life, or in so-called sexual neurasthenia. In these cases we see an infiltrated mucous membrane and a large white colliculus, with subsidence of the original acute symptoms, but a train of indefinite and persistent minor ones in their stead.

More cases of posterior urethritis are of the above nature than, perhaps, all others together. The endoscope reveals numerous pictures besides the deep red swollen membrane and veru and their thick and white later appearance. We look for granular, vesicular, desquamative and hemorrhagic changes, but from a

clinical aspect they all follow the course of the circulatory disturbance and result in the same permanent tissue changes unless arrested early.

The symptomatology of chronic posterior urethral inflammation is quite similar in all cases. Pain in the back, frequency of micturition and nocturnal emissions are the most common. There may be a little discharge at the meatus, but in most instances the bladder receives the discharge and the turbidity of the urine shows its degree. The urine may be clear and turbid at intervals in the same case. There is generally much irritation of the sexual centers, and this is evidenced not only by nocturnal emissions, but also by diurnal erections which may manifest itself even on the occasion of treatments. In one case while employing the Buerger cystourethroscope there occurred a distinct orgasm which was plainly visible as two jets from the prostatic ducts.

Other common symptoms of sexual irritation are erection and orgasm extravaginam and subsequent flaccidity. The sensation of unfinished micturition is probably the most persistent of which these patients complain, and is probably due to the enlarged colliculus acting as a foreign body and irritating the vesical neck.

The above are the usual complaints of those whose urethral walls are not much infiltrated. They are still in the congestive or irritative stage. Later, when an infiltration is present, the mucous membrane loses its sensitiveness and there occurs a diminution in the acuteness of the symptoms. Examination now reveals a white, more or less thick and hard infiltrate involving both the mucosa and verumontanum. There is difficulty in the passage of instruments of any considerable size, and dilatation is soon followed by contraction. Under these circumstances the patients hold the urine well, but there is difficulty or slowness in starting the stream. Sexual irritability is absent, but orgasm ensues without erection or sensation. The sexual appetite is lost or nearly so. Should there still exist the power to copulate it may be accompanied with more pain than pleasure. This is probably due to the loss of elasticity in the tissues involved.

In the amelioration of these symptoms silver nitrate in varying strengths and by various methods is usually employed, either alone or as an adjunct to other measures, such as fulguration, cautery, puncture, aspiration etc.

Just why it has held sway so long has been a difficult question to answer. To my mind its use is a brutal and unwise pro-

cedure, for while it is true that in many phases of posterior urethral disorders silver in this form seems to accomplish much it does so at the expense of much pain and damage to the mucous membrane. Aside from the excruciating pain, strangury, tenesmus, and hematuria, which even mild solutions often occasion it is responsible for many of the permanent infiltrations of this delicate membrane. For these reasons I have always sought a substitute for this remedy and have employed the proprietary silver salts as they were introduced; also copper sulfate in aqueous solution and in glycerin, zinc sulfate, and sulphocarbolate, picric acid, tannin and many other agents, all of which fell short of the desired effect.

I am of the opinion that much of the thickening in the deep urethral membrane is a direct result of the protracted use of silver nitrate. The blanching of the membrane seen on the application of even mild solutions is not due to an astringent action, but rather to the destructive effect of the caustic drug. There is no contraction of the minute vessels, but more probably an engorgement from the irritation which is masked by the *apparent* blanching.

In the treatment of the chronic non-effective posterior urethral conditions an astringent is desirable, but it must be bland even in strong solution and also antiseptic. Sophol is a silver salt which I have found to possess admirable qualities for urethral applications. It is markedly astringent and non-irritating even in strong solutions and sufficiently antiseptic to clear up the ordinary bacterial infections accompanying catarrhal conditions of the urethra when employed in 5 per cent. solutions.

There is no irritation whatever and in cases of congestion of the deep urethra where frequency of micturition and tenesmus are the prominent complaints patients will state that they find the act accomplished with ease for some hours after the instillation of the sophol solution. Owing to the shrinkage of the capillaries the lumen encroached upon by the congested membrane is widened.

The citation of two cases will serve to illustrate the method of treatment:

CASE 1. L. S. Male, 30 years of age. History of four attacks of gonorrhea, all properly treated and pronounced cured after provocative tests and microscopical examinations of the secretions. Sexual excess the rule. After a few months of excess this patient complained of frequency of micturition and smarting throughout the urethra. After relief of the symptoms he discontinues treatment, only to present himself again after their recurrence. This has occurred just twelve times in the past

eight years. Examination of the urethra revealed a deeply congested membrane which bleeds easily on instrumentation, to which he was highly sensitive and which could be accomplished only with difficulty even after the injection of a 1 per cent. alypin solution. It was my practice to rely entirely on the action of the cold rectal psychrophore and after thoroughly anesthetizing the membrane to irrigate slowly with cold water, as all solutions proved either irritating or inert. Sophol in 10 per cent. solution was tried two years ago with good result. A soft rubber catheter (15 French) was attached to an Ultzmann syringe and the instillation given with as little pain as possible. The symptoms subsided rapidly, and since I have employed this method of treatment, the patient feels sufficiently well (though not cured) to leave off after 6 to 8 instillations.

This case illustrates an irritative condition with much vascular disturbance which I had found refractory to the usual therapeutic measures.

CASE 2. M. G., male, 25 years of age. This patient complained for three years of burning in the deep urethra and a slight urethral discharge. There was no history of gonorrheal infection. Microscopic examination of the meatal secretion was negative bacteriologically, and the prostatic secretion was normal. This patient indulged in coitus but rarely, as he was engaged to be married. Endoscopic examination of the posterior urethra showed a large red colliculus on a deeply injected membrane. Sexual excitement without gratification in this instance probably acted as the most important etiological factor in the vascular changes which were so marked. The treatment was about the same as in the above named case, with results equally gratifying.

In conclusion I wish to make myself clear as to the exact field of this method of treatment as it would be a fallacy to claim that this or any mere application of any remedy would suffice in the protean departures from the normal seen in this region. The hyperemic and congestive conditions per se are benefited immediately and more easily cured than by other means. On the other hand, the infiltrated and hypertrophic conditions are best treated with such measures as dilatation, fulguration, cautery or incision, after which the use of sophol solution is, to my mind, the best supplemental treatment. In incipient prostatitis I am also in the habit of employing this remedy in preference to silver nitrate, and find that there is a diminution of nocturnal micturition.

THREE CASES IN WHICH CHEWING-GUM AND ONE IN WHICH A WAX CANDLE WERE REMOVED FROM THE MALE BLADDER

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THE introduction of foreign bodies into the bladder is not a rare occurrence either in the male or in the female. A large number of substances, such as pencils, needles, hat and hair pins, pieces of hay, etc., and occasionally a wax candle have been used with the idea of allaying irritation in the urethra, as a means of dilating the canal, or more commonly to excite sexual sensations. During the past six months another substance has come under my notice in the form of chewing-gum. This substance has been inserted into the urethra for various reasons. In the first two of my cases it was used to excite sexual desires whilst in the last one it was used with the idea of curing emissions. Cases of this kind are very rare and it is for that reason I thought it worth while to report them. I said that they were rare, but if stones, removed from the bladder, were always cut through to determine the nature of their nuclei, I believe we would find they were composed of chewing-gum oftener than we imagine. It was only by doing this that the last case was detected.

CASE 1. The patient, a young man 22 years of age, was referred to me by Dr. Keenan. The patient admitted, that on the day before admission to the hospital, he had inserted a piece of chewing-gum, the shape of a bougie, into his urethra. This produced an erection, which combined with manipulations caused the chewing-gum to slip into the bladder.

A cystoscopic examination was made which demonstrated the presence of an elongated mass lying on the floor of the bladder.

Operation:—Under novocain, as a local anesthetic, a lithotrite was inserted, but after numerous attempts had failed to remove more than small pieces of the gum, it was abandoned.

Diary:—On the first urination after leaving the operating-room he passed the whole mass.

CASE 2. This case, besides being of interest from the fact that such a substance as chewing-gum was found in the bladder, was made still more interesting by reason of the fact that it was

discovered accidentally, having been in the bladder for at least three months. During that time he had been treated for cystitis and at no time did he volunteer any information about the introduction of a foreign substance.

History:—The patient, a boy of 18, was referred to me by Dr. Hargraves. The boy complained that he had been suffering severe pain in the perineum and at the end of the penis for the past three months. The pain was usually felt at the end of micturition and was frequently accompanied by a few drops of blood. At first he had slight frequency of micturition during the day but latterly this had increased until at the time of admission it was present both by day and by night.

Examination:—A general examination revealed nothing of interest. The urine contained a large amount of pus, and also blood in microscopic amount.

Radiography:—The skiagraph revealed a shadow in the bladder region which was apparently a peculiarly shaped vesical calculus. I thought this peculiarity in shape might be due to the presence of two stones.

Cystoscopic examination:—The bladder wall showed evidences of an acute cystitis, and lying on the base could be seen a peculiarly shape calculus.

Operation:—Under gas and ether anesthesia the bladder was opened suprapubically and the calculus removed. At first sight it appeared to be a phosphatic calculus, but during the examination a portion of it broke off revealing a nucleus of greyish gummy material. The diagnosis as to the character of the nucleus was confirmed when the odour of spearmint was detected. The specimen was in the form of the figure 6 and measured 5 cm. in length and had a diameter of 1 cm.

CASE 3. This case was of great interest on account of the size of the calculi which had for their nuclei pieces of chewing-gum.

History:—The patient, a boy 17 years of age, referred to me by Dr. Alexander, was admitted suffering from pain in the bladder and along the penis. This pain had existed for six months and was present during and at the end of micturition. He had also moderate frequency of urination both by day and by night. The examination of his general condition was negative. Urine was pale and very cloudy, this being due to pus. The radiograph showed two large stones in the bladder region. The cystoscopic examination confirmed the diagnosis of vesical calculi.

Operation:—Under gas and ether anesthesia the bladder was opened suprapubically and two large stones removed. The stones measured 5 x 3 x 2 cm. and 4 x 2½ x 1.5 cm. The covering was composed of phosphates.

In order to determine the nature of the nucleus one of the stones was sawed through and then it was seen that chewing-gum formed the nucleus.

In questioning him after the discovery he admitted having inserted a piece of chewing-gum into his urethra a year and a half ago in order to prevent erections.

CASE 4. This case is of interest in as much as it is an example of a rather rare condition. The introduction of a wax candle through the male urethra into the bladder has been reported in a few instances from European clinics and a rather hurried search of the literature for the past few years reveals one such case in this country. As in the two preceeding cases so in this one the patient did not volunteer any information as to the true nature of his illness. He had had this foreign body in his bladder for at least three months and during that time had consulted a number of doctors who treated him for cystitis.

He presented himself at the Royal Victoria Hospital stating that he had paid doctors all he could afford and yet was not cured and asked if anything could be done. The only information he volunteered which might lead one to suspect a foreign body was that he could feel something rolling about in his bladder which seemed to bring on a desire to urinate.

History:—The patient was a young man 26 years of age; was married and had a child 7 months old.

Eleven weeks ago he noticed that during micturition the flow of urine would become suddenly arrested and then by moving about it would come on again. When this occurred he would have considerable pain in the perineum, which would last about half an hour and then pass off. On one or two occasions a few drops of blood came at the end of micturition. He had considerable frequency of urination during the day, but none at night, until the past week. One week ago the right testicle became swollen and tender.

Examination:—His general condition was good. The right epididymis was enlarged and tender. The right seminal vesicle was full and somewhat tender.

X-ray examination:—Negative.

Cystoscopic examination:—At the vertex of the bladder a somewhat rounded mass could be seen. This mass had a translucent appearance in parts, whilst in others it was black. An ureteral catheter was passed through the cystoscope, and it was found that by running the catheter alongside the mass it could be moved from side to side, but could not be displaced from the vertex of the bladder. I felt that a positive diagnosis as to the nature of the mass was impossible, but I made a tentative one of papilloma which had undergone degeneration.

Operation:—Under gas and ether anesthesia the bladder was opened suprapubically and on inserting the finger the mass was found free and floating within its cavity. A pair of stone forceps was inserted, and the mass delivered. In doing this the shape of the mass was altered. The bladder was drained suprapubically as there was a rather severe cystitis.

Examination of the mass showed it to be a portion of a wax candle. The shape was altered on account of its having been so long in the bladder and also on account of the difficulty in removing it. It measured 9 cm. in length and $3\frac{1}{4}$ by 2 cm. at its broadest extremity. The wick measured 3 mm. in diameter.

In 1908 Lohnstein published a case in which he removed a lump of wax from the bladder by means of benzine. Since then three other cases have been reported. The best method is that described by Lenk and consists of injecting 120 cc. of sterile water into the bladder, and then 50 cc. of benzine. By this means the base of the bladder is protected from the benzine. This is important as the base of the bladder is the most inflamed portion and benzine irritates an inflamed mucous membrane, and also is more rapidly absorbed from such a surface than from a normal one. As both the benzine and the wax float on the surface of the water the benzine acts directly upon the wax thus dissolving it. The fluid should be allowed to remain in the bladder about five minutes and then be removed. After washing the bladder the treatment may be repeated until all the wax has come away, the wick being extracted later by means of a lithotrite. Such a line of treatment could not be followed out in my case as there was no suspicion that the mass seen in the bladder was a wax candle.

SEXUAL IMPOTENCY IN THE MALE

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AUTHORIZED TRANSLATION. EDITED WITH NOTES AND ADDITIONS BY
DR. W. J. ROBINSON

[Continued from the September issue.]

CHAPTER XXIII—ABSENCE OF SEMEN ASPERMATISM, ASPERMIA

WHEN in otherwise normal coitus no semen is *discharged from the urethra*, we denote the condition as aspermatism or aspermia in the wider sense.

In the narrower sense we mean by aspermatism the pathologic state, to which no semen whatever is *produced*. This is an extremely rare condition, whether inborn or acquired, and only isolated cases are to be found in the literature of the subject. Congenital absence of both testicles, which is of course accompanied by atrophy or incomplete development of the prostate, results in complete lack of semen.

Complete aspermia may also result from severe mutilation of the male genital organs and from operations. Ability for coitus is also usually lost in these cases.

Of much more clinical interest are the cases of aspermatism in the wider sense cases, where the production of semen is well preserved, but ejaculation has become impossible from mechanical or functional causes.

We must first distinguish between mechanical and functional aspermatism. According to Schulz (*Weiner med. Wochenschrift* 1862, 49-50) we must again separate the cases into two main groups: (1) the permanent, absolute cases of aspermatism, where ejaculation of semen can never occur, and (2) the temporary or relative aspermatism, where ejaculation is prevented only under certain circumstances. I wish also in this more general classification to hold fast to the distinction between mechanical and functional causes.

We assume a permanent aspermia, when coitus takes place regularly without any ejaculation of semen from the urethra. The commonest cause of this condition is a mechanical one; namely, that a stricture exists in that part of the urethra

which lies in front of the common outlet of the sexual glands at the side of the colliculus seminales. We have repeatedly seen patients, who could still pass urine in a thin stream, but could not possibly ejaculate the semen. In order to explain this phenomenon, that the stricture is permeable for urine, but impermeable for semen, we must first remember that the semen is thicker and much more viscid than the urine, and secondly that the urine is expelled by the contraction of a usually hypertrophied vesical musculature, while the semen is ejaculated only by the contractions of the muscles of the bulbus urethræ (Curschmann.)

The seminal fluid regurgitates in such cases into the bladder, whence it is voided, after coitus, with the urine. Both gonorrheal and narrow traumatic strictures can produce this unfortunate result. (Spermaturia Grünfeld.)

There are also cases of so-called spasmodic strictures, (spastic conditions in the urethral sphincter), which result in a backflow of semen into the bladder.

Thus a colleague reported to me, that whenever he was under very strong sexual excitement, he performed coitus without an ejaculation, whereas at other time the semen appeared promptly, especially his nocturnal pollutions were always accompanied by ejaculation. The patient has the feeling of ejaculation and a satisfactory orgasm also with an aspermatic coitus. After the coitus he passes cloudy urine containing spermatozoa. The patient also suffered from the typical symptoms of sphincter-spasm: polyuria, dysuria, interrupted flow of urine, hesitation of the bladder. A rational sexual hygiene combined with local treatment of the anatomically sound urethra (i.e. free of organic stricture) cured the patient completely of this half mechanical, half functional aspermatism.

Such cases of spastic retention of the semen resulting from spasm of the sphincter had already been described by Sauvages and Milton.

It is characteristic of this form of ejaculatory disorder that coitus ends as a rule with a colicky pain in the urethra, prostate, and the spermatic cord (seminal colic).

Seminal colic at the end of coitus is also the subject of com-

plaints among many sufferers from organic stricture of the urethra. We will mention here as a curiosity a case of Hirtz', which we find described by Curschmann. It concerns a sort of spontaneous cure of aspermatism resulting from gonorrheal stricture. "The man performed coitus otherwise normally, but could never produce an ejaculation, and afterwards passed cloudy, seminal urine; on one occasion, however, during coitus he felt a violent pain followed by a seminal emission. There was a severe hemorrhage at the same time, and from that time his sterility disappeared, as was demonstrated later by the delivery of his wife. In this case an obstacle due to a former gonorrhea had given way from unknown causes."

If there is a cicatrization of the mucosa of the posterior urethra from ulcerative processes (gonorrhea) or from injuries to the prostate, cicatricial obliteration of the excretory ducts of the testicles and prostate may result, and the outcome will then be a complete, permanent, mechanical aspermatism.

Also a congenital closure, a lack of the ejaculatory ducts, or a congenital deviation of their orifices in the urethra may have the same consequences (Munroe, *Boston Med. and Surg. Jour.* 1867).

The cause of this mechanical form of aspermatism frequently lies in affections of the prostate. Gonorrheal and other abscesses of the prostate can result in such far-reaching destruction and cicatrization of its parenchyma, that the excretory ducts are obliterated and ejaculation becomes impossible.

The same holds true for concretions, tuberculosis, and neoplasms of the prostate. The excretory ducts are especially liable to be compressed in prostatic hypertrophy through the mighty growth of the fibromyomatous nodules.

Aspermatism may also of course result from a partial or total prostatectomy. It is true that very often after this operation there supervenes also an impotentia cœundi an inability for coitus.

In one case of chronic suppurating prostatitis, in which the gland was partially extirpated, the operation was immediately followed by incapacity for erection, which lasted about a year.

Ability for coitus later returned slowly, but permanent aspermatism has since remained.

The second main group of permanent and temporary aspermatism consists of those cases, in which, owing to a peculiar inhibition of the ejaculatory reflex, coitus ends without seminal emission.

This form is designated by Bergh as "idiopathic, psychic, or nervous aspermatism." Netzmann also observed such cases of aspermatism with completely normal semen-producing organs and open excretory passages. Cases of purely nervous, psychical aspermatism were further described by Cockburn, Schulz, Hammond, and Finger.

The symptomatology of this peculiar neurosis is a manifold one.

(1.) The severest cases show an absolute, permanent, functional aspermatism. There exists a complete unexcitability of the ejaculatory center, probably a congenital abnormality, notwithstanding the fact that the anatomical condition of the semen-producing organs as well as the libido and the course of the erection-reflex leave nothing to be desired.

These cases, which are rare among the abnormalities of the male sexual functions, are not yet entirely explained, since it is still a mystery, in what way the normally secreted seminal fluid is disposed of. Ejaculation and any voluptuous feeling are wholly absent in such cases; seminal emission also never follows sexual dreams. We have never seen such a case ourselves, but reliable authors mention undoubted cases.

(2.) In other cases the functional aspermatism may be acquired. It occurs temporarily and only under certain conditions, and is rightly designated by Güterbock as psychic aspermatism.

All the injurious influences upon the sexual life, which can produce disorders in the course of the normal genital reflexes, such as masturbation, interrupted coitus, venereal excesses, immoderate abstinence and homosexual relations,—can occasionally lead to deficient excitability of the spinal ejaculatory center. Various toxic influences, especially alcoholic intoxication, (Finger), have been also held responsible for this disorder.

Peyer observed this form of aspermatism in affections of the spinal cord, especially in tabes, and discovered this reflex disorder as a prodromal symptom in a case of ataxia.

This category of cases furnish a striking proof for the existences of an ejaculatory center in the lumbar cord, **SEPARATE** from the erection center, which is subject to separate stimuli and separate inhibitions.

According to the particular form of the neurosis the inhibition of the ejaculatory reflex may be directed only to one particular person of the other sex (analogous to psychic impotence), or to particular circumstances and occasions with regard to the coitus. This latter is relative, psychic aspermatism. In one case that we know of ejaculation occurred only when the husband was on furlough, while otherwise he suffered from nervous aspermatism and subsequent night pollutions.

In other cases periods of complete psychic impotence alternate with periods of normal erection with aspermatism. The nocturnal pollutions, however, in which the psychic inhibitions of the ejaculatory reflex are excluded end as a rule with a normal seminal emission.

A Russian apothecary, who had taken his wife from one gynecologist to another on account of sterility, finally confessed to the physician who gained his confidence, that since his marriage he had never had a seminal ejaculation in spite of normal libido and sexual power. After each coitus he had as a rule a large emission in the night. He had performed interrupted coitus for a long time before marriage. Our advice was to take 0.02 [$\frac{1}{2}$ grain] of morphine internally before the coitus—a measure which had given us excellent results in many cases of psychic impotence, probably by eliminating the inhibitions.

After the patient had been convinced, after a thorough discussion of the purely nervous cause of his trouble, he was completely cured in the first week of renewed intercourse with his wife, and the wife became pregnant.

The unequal distribution of the stimulations and excitations among the two spinal genital centers, due to certain injurious

agents in the *vita sexualis*, may also cause a temporary psychic aspermatism.

Finger tells of a young man, who suffered at first from aspermatism with each new female acquaintance, which disaspermatism on nearer familiarity most frequently. Psychic aspermatism develops as a result of regularly practiced coitus interruptus or after voluntarily protracted erections (frustrated erections). The course of events is commonly this: after these injuries the patients at first complain of retarded ejaculation, they continue coitus for an astonishing length of time (in our case cited above for over an hour) before ejaculation results. The effect of this protracted coitus is as a rule very bad; the patients feel extremely tired and depressed for several days, are out of humor, and have painful sensations in the perineum and urethra. Evidently the inhibition of the ejaculatory reflex then develops completely as a result of the bad consequences of retarded ejaculation.

This condition may be improved or cured after a longer or shorter time, as we saw in our case and as Curschmann also reports.

The inhibition for the ejaculatory reflex in the case just described lay in the subnormal excitability of the center.

The discharge of the ejaculatory reflex may also become impossible, because the peripheral excitations are not sufficiently intense. Curling (quoted by Peyer) designates this "anesthetic aspermatism." In Curling's case the glans penis, the dorsum, and the prepuce were so scarred by a luetic ulcerative process, that—so the author supposes—the cutaneous sensibility had so suffered that the reflex effect upon the ejaculatory center by the peripheral nerves was made impossible.

(To be Continued)

THE FUTURE OF SYPHILITICS, BASED ON THE CHARACTERS OF THE PRIMARY AND SECONDARY LESIONS

By HENRY MARINGER, M.D., Nancy, France.

ALTHOUGH the treatment of syphilis by "606" has revolutionized the therapeutics of this affection and undoubtedly its prognosis as well, it is yet too soon for one to formulate the ultimate results in all the cases which have been treated by this potent remedy. This paper, which is strictly clinical, as its title indicates, will deal only with the prognosis of syphilis from the standpoint of the chancre and resulting secondary manifestations.

Is it possible to foresee, from the source of the contagion and from the characters of the primary sore, whether or not in a given case the evolution will be mild or severe? To reply to this, it is necessary to discuss the factors of gravity involving the initial lesion. The question has given rise to much discussion and has, as yet, not given any precise results, so that we are certainly obliged to avow that, at least so far as serious tertiary accidents are concerned, only hypotheses can be given.

First, has the source of the syphilis, the soil from which it was contracted, any bearing on those ultimate severe accidents which may involve the life of the patient? Gémy has emitted the theoretical proposition that *a syphilis contracted from a source virgin of any treatment and not attenuated, is serious, often fatal, if not methodically treated. A syphilis contracted from a source treated for a long time with mercury remains mild and a cure is rapidly obtained by relatively small doses of mercury.*

The soil has an undoubted influence on the seed, and a good soil attenuates a virulent seed, just as a bad soil facilitates the pernicious work of the seed. This proposition is, it must be said, entirely *theoretical*.

In point of fact, it is very difficult to go back to two generations of syphilis and to decide upon the part which belongs in each particular case to the individual circumstances which constantly vary.

Another point which is of no greater certitude is as follows: Is a syphilis to be a mild one when contracted from a mild source? In reply to this it may be said that cases are known of soldiers who contract the disease from the same female who has never presented any serious manifestation. Of the

three individuals who have enjoyed her favors and misfortune, one ends a tabetic, the second will escape with suppurating cutaneous syphilides, while the third will go through a mild form of the infection.

Fournier has pointed out that it has been upheld by some that *the secondary origin* of the disease, that is to say, *an infection from some secondary lesion*, indicates a mild infection. Inversely, *a serious syphilis should be feared when contracted from a primary lesion*. Rollet says: "*I have come to the conclusion not to lay particular stress on the origin of the disease and to take the infected patient more particularly into consideration than the person transmitting it.*"

There is no particular importance as to the duration of incubation of the chancre, its duration or the amount of lymphatic involvement. At the most, one may admit with Halpern, that in syphilis transmitted to the foetus by the parents the older the parental syphilis, the lesser will be the tendency to an irritative and inflammatory character and a greater leaning towards chronicity. From the standpoint of the type, the manifestations of the syphilis in the child will be in relationship with those of the parental syphilis.

Such are the hypotheses that can be offered relative to the influence of the germ of a syphilis and its influence over the ultimate progress of the disease.

There is another problem, which would be desirable to settle in the affirmative, but on which we have no more certitude, namely: *Can one make a previsionsal diagnosis of syphilis from the characters of the initial lesion?* In other words, do the characters of a chancre allow one to suspect what the characters of the syphilis will be? Does a benign chancre give rise to a mild case? Will an ulcerating chancre result in a malignant syphilis, and, as an accessory question, does the seat of the primary sclerosis, particularly its extra-genital situation, imply a more reserved prognosis?

We can be brief on this subject, which brings back Basereau's law, the so-called *law of concordance*, which is as follows: Following benign indurated chancres come benign syphilitic eruptions and the various lesions of the tissues without tendency to suppuration. Following phagedenic indurated chancres come malignant pustulous syphilides, cutaneous ulcerations, suppurating exostoses, necroses and caries.

In common accord it is admitted that *this law is true for the immediate future; that is to say, for the secondary period, but is false as far as the tertiary period is concerned.*

The benign character of the initial lesion is not a guaranty for the future because the most serious accidents may arise in subjects who had only a small chancrous ulceration. This is also Fournier's opinion, who expresses himself as follows:

"The relation of the type, as to benignity or gravity, between the chancre and the constitutional accidents, exists only for a time.

"It is formal, undeniable, between the chancre and the first manifestations succeeding it. But beyond this it no longer exists. Benign chancre, benign secondary invasion; malignant chancre, malignant secondary invasion, this all that is true. But benign chancre and a syphilis indifferently benign in any period, or reciprocally, is false. And on the other hand, the initial benignity of a syphilis in no way implies an immunity in the future."

The prognosis derived from the chancre consequently extends over a relatively short period. Small, benign, slightly indurated, fleeting chancres, or large, phagedenic, indurated, ulcerating and tenacious chancres; all are of little importance as regards the development of the graver types of tertiary accidents, those which kill.

As to the prognostic value of *the multiplicity of the chancres*, I have tabulated statistics of ninety cases, covering four years and still I have been able to come to no conclusion. It would be necessary to follow these cases for many years which can only be done in private practice.

The *local prognosis of the chancre* is no more certain. How many chancres remain devoid of any gravity whatsoever, even without treatment, while others, even in subjects subjected to an intensive treatment, suddenly take on a serious aspect and become complicated by an inflammatory process, gangrene, phagedenism: an entirely local prognosis having no bearing on the patient's future.

What is the *prognostic value of the lymphatic involvement*? This is a question to be again studied with interest. This has acquired diagnostic importance in recent years, especially from its characters of an inguinal, cervical, and epitrochlean polymicroadenopathy. And nevertheless, how many conditions other

than syphilis give rise to this lymphatic involvement, such as ulcus molle and adenia, without mentioning the eruptive fevers. Why may not this be in part a simple reaction to the infection as in so many other infections?

It has been said that a syphilis which is not accompanied by a lymphatic reaction was more dangerous because it "was burning its rations," but this seems to me words imprudently put and a prognosis based on this symptom is quite as precarious as one based on the characters of the chancre.

Time and experience will, perhaps, enlighten us on this point, but at present it is still *sub judice*.

The seat of the chancre was for a long time considered as a grave prognostic sign and is still a discussed question. Some writers are of the opinion that an extragenital chancre has a bad prognosis while others believe that the site is of no significance. Feiber believes that the prognosis is not so good when the lymphatic involvement is pronounced, because the initial lesion is often unnoticed, from which arises a more marked secondary symptomatology.

What causes the gravity of an extragenital syphilis is usually the unfavorable soil on which it develops. A chancre on the finger, which is more common among physicians, is followed by more serious accidents simply because cerebral and physical overwork favors the development of syphilis of the nervous system. The chancre of the nipple in wetnurses results in a more serious infection because in these subjects the organism is less resistant on account of the fatigue of nursing. The vaccinal chancre finds in the young subject a debilitated soil so that the infection takes on malignant characters because the organism offers no resistance. Therefore, for any special malignancy offered by certain cases of syphilis originating from a mammary, digital or vaccinal chancre we must be led to conclude that the undeniable gravity which they occasionally manifest is the result of added foreign circumstances, either essentially individual conditions, such as age, constitution, personality, morbid predisposition, bad hygiene, poor treatment or absence of treatment.

In a word, what appears to cause the gravity of a syphilis is the nature of the soil, far more than the site of the implantation of the seed. Consequently, there is no certitude as far as the prognosis of syphilis is concerned in the seed, the origin, the

characters of the chancre and the accessory lymphatic involvement and the site of the initial lesion.

What is the value of the secondary accidents for the immediate or remote prognosis of syphilis? It is a most vexatious period, rich in visible and multiple symptoms, but it may become complicated by serious manifestations, such as ocular affections, deafness, nephritis, icterus gravis, and disturbances of the nutrition. I have already stated that some have given as an index and guaranty of a mild infection, one that will quickly wear itself out, the secondary origin of the disease. It has also been thought that very numerous outcrops separated from each other by long intervals means a benign syphilis. In a like fashion it has been supposed the signs of a severe syphilis could be found in a short secondary incubation with slight lymphatic involvement, elevation of the temperature, intense and persistent pains, anemia and loss of flesh or when the eruptions were subintraant. All these symptoms would rapidly lead to a precocious malignant tertiary period.

This is a controverted opinion and the majority of writers have solved it in the negative. And in this respect we would call attention to Diday's old dictum, namely, "*The syphilis which breaks out is less serious.*"

To admit a lesser gravity of a case of syphilis according to the contagion, one must have at his disposal a large series of observations covering a long lapse of time, allowing one to establish a parallel between syphilis derived from a chancre and that contracted from secondary lesions. Now, in this respect there are no statistics of any value.

As to the quality of the contagium, has it any action on the symptoms and intensity of the infection? In the present state of our knowledge nothing has been demonstrated in this respect. *The character of the crops of secondary lesions*, just as in the case of the chancre, *has only a prognostic value for the meantime and not for the future*, and a syphilis which commences with a benign roseola may terminate with very grave accidents.

Here, then, is the question judged in a general way and I will only indicate certain particular points. *Certain syphilides, without reference to the ultimate gravity of the disease, are nevertheless serious, because by their disheartening persistency they trammel all social life in patients thus afflicted.* We have all seen the sad figure cut by the man around town

with persisting ulcerating syphilides of the plantar surface which resist even prolonged treatment, but at present with "606" we probably have a potent ally in the cure of these stubborn lesions. It is certain that a mixed treatment has, in the past, rapidly controlled syphilides of the limbs, but the ulcerations on the face and plantar surfaces are rebellious to it and sometimes even aggravated by it. And for what reasons? The importance of local treatment is not less than general treatment, and it is difficult for these patients to keep their faces done up in the proper dressings. Then, too, the beard prevents direct contact of the medication. But the reason should be searched for in the anatomical structure of these regions; they are thick and the considerable density of the epidermis prevents both internal and external medical agents from penetrating the deeper layers. The well-known researches of Justus have conclusively shown that mercury is transported by the phagocytes. Now, these cells brought to the surface of the papillae by the blood current cannot go farther and break through the thick barrier formed by the epidermis.

Here then is an example of syphilis which, by its resistance to treatment, aggravates the prognosis, not by attacking organic life, but the social conditions of the individual.

Other secondary localizations become a danger in themselves. Without entering into details, I will merely mention the gravity of laryngeal syphilis, syphilitic myelitis, likewise the hepatic and renal manifestations. I have selected those which are the most frequently met with in practice.

As to drawing a prognostic sign of future events from a secondary symptom, it simply remains in the domain of hypotheses. Trousseau believes that the apparition of ocular accidents always indicates a serious or even grave syphilis, deep infection of the organism, whether the eye affection is an iritis, iridochoroiditis, retinitis or optic neuritis. It is only exceptionally that ocular manifestations are met with in cases of mild syphilis and then they are fleeting and rapidly disappear under treatment, and Trousseau draws the following indication: Carefully watch and energetically treat all subjects presenting ocular disturbances during the secondary period.

We consequently see from what has been said on the prognosis of syphilis according to the characters of the secondary lesions, that no more precise conclusions can be reached than

in the case of the primary sore. Perhaps Diday's dictum that "a syphilis which energetically manifests itself on the skin is less likely to attack the nervous system later on," should be taken into account, but I think that its truth, if it has any, can be explained by the fact that since the cutaneous lesions are energetic, an energetic treatment is applied against them, resulting in more security for the patient's future.

FOR THE AMERICAN JOURNAL OF UROLOGY.

FUNDAMENTALS OF SURGICAL PHYSIO-PATHOLOGY OF THE KIDNEYS

By DR. F. CATHELIN

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OF late I have been asked to operate on patients suffering from renal diseases on whom tests of renal function had been made by other physicians and it turned out that the analyses submitted to me, although carried out on separate specimens obtained by ureteral catheterization and examined by skillful chemists, did not give a single bit of information in addition to what could be gathered from a clinical examination alone.

The fact is that the specimens had not been obtained in accordance with fixed rules or else that false interpretations were made on account of failure to observe a set of newly acquired ideas of the utmost practical importance. As we are here dealing with new principles which have not as yet become sufficiently common to be rendered classic, it is wise to sum up these laws in order to clear up the religion of those who have not yet received the faith in matters of renal investigation.

I. *Phenomenon of "Renal Apnea."*

When a kidney is catheterized two abnormal phenomena may occur. Sometimes there is an increased secretion following a stimulation of the gland by means of the renal catheter, this phenomenon being called "renal polyuria." At other times the kidney seems to be "stupefied" and "shuts off" its secretory mechanism. It does not "breathe" any more and may remain thus for a time without secreting in a state of "apnea," an accident which may happen to the most normal organ and which must always be borne in mind before concluding that the kidney has ceased to functionate. As I wrote a long time ago: "The kidneys give when *they* wish and not when *we* wish them to."

II. *Necessity of Obtaining Three Successive Specimens of Urine From Each Kidney.*

It is a matter of daily occurrence to see urinary examinations reporting the percentage of urea and of chlorides on one side or the other, or to receive analyses with two figures only, on the basis of which we are asked, "Will you operate?" or "Should one operate with 3g. on one side and 10 gr. on the other, or with 10 gr. on one side and 25 gr. on the other?" Such figures signify absolutely nothing and it is not safe to assume anything from such analyses as they may even lead one into error.

If one wishes to interpret with any degree of accuracy the figures furnished by such an examination, it is quite necessary to obtain three separate specimens for each of the two kidneys (each specimen representing a flow through the catheter of from 15 to 20 minutes), so as to have about 8 to 15 cc. in each glass, and to continue the catheterization for about one hour in all. Besides it is absolutely essential to ask the chemist for the urea and chloride output per liter of each of the six specimens in order to study their variations.

III. *Importance of Comparative Values.*

The urea and chloride output per liter has only a comparative value, that is to say, a figure apparently poor when compared with another figure for the same kidney may on the contrary be satisfactory when compared with another figure for a different kidney, provided that the difference between the two figures is sufficiently great, and even if this discrepancy is not so great as long as there are also symptoms of deficiency attributable to the kidney with the lower figures.

IV. *It Should be a Fixed Rule Never to Accept Data Obtained From a First Specimen of Renal Urine Derived From the Bladder.*

This rule is a corollary to that demanding the examination of three specimens. It is obvious that a first specimen obtained through a ureteral catheter is perfectly valid since it is derived, so to speak, from the original source itself. The case is different however with a first specimen representing the other kidney and obtained from the bladder (assuming the first-mentioned catheter still in place), because of the danger of dilution with the irrigating fluid which may not have been completely drained from the bladder. Of course this feature does not have to be considered when the resulting figures are high.

V. Frequent Discrepancy in the Urea and Chloride Content.

There is no parallelism whatever between the content per liter of urea and that of chlorides. The first may be high and the second low, and vice versa. Of course the figures may be low in certain cases where the NaCl is retained in the tissues and the tubules are preserved, and they may be high even when the latter are destroyed, since there is still left a fairly large portion of cortical substance. Besides, the NaCl molecule is small, and may pass through where others cannot, which explains certain cases showing an increase in the NaCl excretion, with a loss in that of urea.

VI. Value of the Urea Output per Liter Independently of the Quantity of Urine Recovered.

As is well known, when dealing with total urines, the urea content per liter becomes of value only when it is multiplied by the quantity in liters of urine passed in the 24 hours, so that an excretion of 3 gr. per liter, which is poor in itself, may really be good if the patient passes 6 liters, for example. On the contrary, as far as separate urines are concerned, the quantity of urine passed in each of the three specimens on each side has no value in relation to the urea content per liter of these specimens. Thus if from one side we obtain 125 c.c. of urine with a 3 gr. per liter output of urea, and on the other side 17 c.c. with a 12 gr. output, we are to conclude, if this proportion holds for the 3 specimens, that the kidney which secretes least is the better.

VII. The Urea Content per Liter is a Function of the Integrity of the Tubular Apparatus.

In other words, a non-functioning kidney, like a hydro- or pyonephrosis, will not give a good urea output. One might as well expect a motorless automobile to run well. Conversely, a good urea output indicates a conservation of the tubular apparatus (convoluted tubules), of the descending and ascending loops of Henle, of the communicating tubules of Schweiger Seidel. That this should be the case is evident since it is the cells in the brush of convoluted tubules, especially, which have the function of selecting or of separating out the quaternary substances which are to be changed into urea.

It is clear, then, that theoretically it should be easy to foretell the amount of available parenchyma according to this diminution of the per liter output of urea. The presence of tuberculous and hydronephrotic cavities could also be established in this way.

VIII. Reaction of the Diseased Portion of a Kidney on the Remaining Healthy Portions of the Same Kidney.

Just as, as my teacher Guyon showed so long ago, there is a sympathetic action of one kidney upon its cogener, so there is a kind of reflex, or toxic, or inhibitory sympathetic action of a diseased portion of a kidney (cavity, stone, tumor, etc.) on the remaining healthy or apparently healthy portions of this organ. I have had occasion to compare this phenomenon to that of a fruit in which a damaged portion imparts a bad taste to the remaining distant and healthy portions.

This is what I have termed (*Congrès d' Urologie*, Octobre, 1912), the hindering action (l'action empêchante) of a diseased part of a renal gland on those portions which are still preserved. I have constant occasion to show my pupils this obvious action in the course of our nephrectomy cases in which the state of the renal parenchyma did not seem to correspond to the output of urea or other excrementitious matters.

IX. Preponderant Influence of the Integrity of the Papilla on the Renal Secretion.

Some months ago I insisted strongly on the loss of urea which could be occasioned by a destruction of papillæ in a kidney otherwise intact. This principle follows from the one immediately preceding and I have even used it as a basis for my theory of primary papillary tuberculous infection of the kidney.

Hitherto it has not been sufficiently emphasized that the papilla was an essential organ, if not of renal function, at least of the regularity of this function, and I have elsewhere compared it to a pump spouts the rôle of which is so fundamental. Of what use are permeable channels and healthy surrounding tissues when the former meet with a closed door or a blind cul-de-sac? Hence the necessity of building up a whole new chapter of renal pathology which I refer to usually as "Diseases of the Renal Papillæ," and which one of my assistants, Dr. Grandjean, has just finished working upon under my direction. In a word, what concerns us is that the anatomical integrity of the papilla is the *sine qua non* of functional integrity of the renal parenchyma.

X. Slight Value of Histo-bacteriologic Examinations of Separate Urines.

Microscopic examinations for renal formed elements or leucocytes, or bacteriologic examinations such as for tubercle

bacilli, have not the same value in the case of separate urines as chemical analyses. It is obvious that the presence of a few leucocytes in the urine from the healthy kidney can in no wise influence our determinations, for it is apparent that such findings are but temporary in nature. Especially is this true in the case of ureteral catheterization of one side where the bladder contents, representing the urine of the healthy kidney, may readily present such impurities without especial significance since they are derived from a vesical mucosa constantly contaminated by the opposite kidney.

XI. Necessity of Repeated Examinations When There Is Disagreement With Clinical Findings.

When the observed figures are large, the differences very marked, and the chemically insufficient kidney corresponds in every way to that clinically insufficient, there is no possibility of error. When however one is surprised to find that the supposedly healthy kidney is actually the diseased one, the necessity for further examination becomes evident, especially in the case where an apparently healthy kidney does not, according to the values obtained, seem capable of assuring a total urinary secretion right from the start.

In such a case the patient should be put upon an appropriate regimen which can readily demonstrate the output of organic matters. Under such circumstances a new test, made after several weeks or months, will allow of the successful performance of a radical operation.

XII. Uselessness of Submitting the Patient to a Fixed Regimen.

It is unnecessary to submit our patients, as physicians in general have done, to a special regimen before attempting renal exploration, whether the regimen be a test diet or whether it belong to the fixed cures, such as the so-called experimental polyuria, which, by the way has entirely developed since that of Albarran. This rule is made because we are dealing with comparative values and because we, as surgeons, find ourselves very often in the presence of purely unilateral affections without disturbances referable to the regulatory mechanism of the blood.

In short, a careful study of these few principles, or axioms categorically presented, will show the many details that the genito-urinary surgeon must always keep in mind if he wishes to interpret rationally, a urinalysis of separate specimens from the two

kidneys. To ignore these various factors, and to play the operator only, will be to invite certain failure, or else to perform incomplete operations which leave the patients just as sick after, as before, intervention and still more useless for work on account of such sequelae as fistulae, painful ureters, or painful adhesions.

A CASE OF MALIGNANT TUMOR OF THE TESTICLE, WITH REMARKS

By MARCEL CARON, M.D., Dieppe, France.

B. C., aet. 26 years, entered hospital complaining of cough and general weakness. Nothing to be found in his hereditary nor personal antecedents; no venereal history.

The commencement of the affection is not clear; he above all complains of weakness and thoracic oppression and has lost in weight for the past few months. During this time, the patient states that the right testicle has increased in size, unaccompanied by any pain or other symptom. The patient appears very thin, but the musculature is normal. From what could be ascertained by questioning and by auscultation, a diagnosis of pulmonary tuberculosis in the first or second degree was made.

Urine normal, spleen could not be palpated, liver slightly tender by hard percussion, nothing in the heart. During the first few days of observation there was a slight evening rise of temperature with a morning remission.

There was nothing to draw particular attention to the testicle. There were no adhesions of the scrotum, which was normal and without any evidence of a superficial circulation, while palpation revealed an enlarged testicle, slightly tender, of equal consistency and with an even surface. The epididymis normal and no evidence of fluid in the vaginal sac. The lower end of the vas deferens seemed somewhat knotty and there was some dilatation of the veins of the cord. With these lesions a diagnosis of tuberculosis of the testicle was made, easily explained by the stethoscopic findings in lungs.

At the end of two weeks the patient's condition became suddenly worse; he had several hemoptoic expectorations, complained of pain in both sides of the chest and in the right lumbar region. Auscultation only confirmed the primary diagnosis of a rapidly evolving tuberculosis. The situation continued to be-

come worse for the next ten days, then choking paroxysms occurred with severe pain in the chest, and asystolic phenomena arose which auscultation did not explain and whose cause could not be discovered. The patient died one month after he entered the hospital.

Autopsy was done the next day and a careful examination of all the viscera established the fact that one was dealing with an enormous neoplasm of the testicle and metastases in the prevertebral lumbar lymph-nodes, lung, liver and dura mater. The spleen and kidneys appeared normal.

The testicle weighed 120 grams; the albuginea was white, glistening and normal and at no spot were there any irregularities excepting at the tail of the epididymis, where the thickened vaginalis was inseparable from the posterior pole of the gland. The tumor was split parallel to its long axis and revealed a generally white aspect with hemorrhagic points, which, discrete in most places, became more marked in the region of Highmore's body. Here whitish neoplastic nodules of large size were separated from each other by hemorrhagic foci, so that the section at this spot appeared like marble. The epididymis was normal, likewise the vas deferens, prostate and seminal vesicles.

The prelumbar lymphnodes form a very large mass projecting on the spine and readily seen after the intestinal coils have been pushed aside. This mass is homogeneous, of a blackish brown color, measuring about 20 centimetres in length by 10 in breadth. The surface is irregular, very friable in consistency and most difficult to isolate. This homogeneous mass contains the terminal portion of the aorta and the origin of the vena cava, both being surrounded by the neoplastic mass, but it is also adherent in its entire extent to the prevertebral ligament, and in order to remove the mass the ligament had to be incised in order to dissect it out.

After incising the mass in every direction, it appears composed of large nodes about the size of a walnut and which are nothing more than lymphnodes whose fibrous capsules, greatly distended, are still apparent in some spots. A small amount of brownish red liquid can be squeezed from the mass.

Finally, on incising the mass in such a way as to open the vessels (aorta and vena cava) in their entire length, it was seen that, although the growth completely surrounded them, their

walls were intact, for their lumina were smooth and devoid of any vegetation.

The liver was not notably increased in size, had preserved its normal shape, its surface was smooth and regular excepting in the right lobe, where some nodules, the size of walnuts, were noted.

On section, two very different portions could be distinguished. The greater part of the parenchyma is normal and surrounded the neoplastic nodules which were distinctly evident by their wine red color and their very evident hemorrhagic aspect. They form concentric waves, becoming darker as the center is reached and of a softer consistency, diffuent, also more marked in the center than at the periphery. The periphery is denser and more resistant to the finger, forms with the healthy parenchyma a transitional zone, somewhat fibrous in look, but not allowing enucleation of the neoplasm. The lumina of some large vessels can be seen.

The largest of these nodules is situated in the postero-internal part of the right lobe near the hilum and is the size of an orange. The other smaller ones are disseminated throughout the hepatic mass with a marked predilection for the right lobe.

....
The heart and pericardium are intact. The pleural cavity, free from adhesions, contains hardly a few spoonfuls of clear serous fluid.

The lungs are red, hard and congested. Their surface is irregular, cauliflower-like, and retains this look after removal from the thorax. By palpation, one feels these same hard nodules, slightly movable over each other, distinct from the surrounding parenchyma, which retains its usual suppleness.

On section, two different aspects are noted. The tissue which has remained supple and of normal appearance is red and congested. It forms a framework around the irregular masses which vary in size from that of an almond to a pigeon's egg and are very difficult to enucleate. These masses are dark in color, hard and hemorrhagic. Pieces taken from this part sink in water. No distinct tuberculosis in the apices, no apparent lymphangitis. The center of some of the larger nodules is yellowish, softer, resembling caseum.

The little nodule in the dura mater is under the left ascending parietal. It is the size of a large pea, reddish brown in

color and friable. It adheres to the dura mater with which it is removed.

I will not go into all the details of the microscopical examination of the testicle and other organs, but will simply confine my remarks to the most important points.

Stained sections of the testicle show macroscopically a tissue of varied texture; bands and areas, deeply stained with eosine, are infiltrated by brightly blue stained masses. The latter themselves are not homogeneous; their stain is more intense in certain points than in others. They also contain some small areas of eosinophiles.

By a low power the above findings are simply confirmed. Besides the extremely abundant pathologic cells which are unequally infiltrated, one distinguishes various elements which, on account of the individual aspect or by characteristic grouping, are at once recognized as formations belonging to an embryonal organism. I would point out that nowhere could a normal seminiferous tube be seen. The study is microscopically carried out on the tissues composing the embryoma and on the neoplastic cells. The embryoma was composed of cartilage, muscle fibres, nerve cells, connective tissue, vessels and cysts.

The neoplastic cells. By a low power one sees areas of cells, extremely irregular in their infiltration, composed of cells perfectly alike. These elements are exactly like those to which Chevassu has given the name of seminoma. They are about three or four times the size of a red blood cell, round or slightly polygonal from reciprocal pressure. Their very large nucleus occupies the greater part of the cell and is itself round or oval, and relatively clear. At its periphery the chromatic substance appears rather more dense so that there appears a fine line indicating its contour. At its center, a very large nucleolus exists, very brilliant and strongly basophile. Some cells contain two, three or more nucleoli. The nucleus itself is weakly basophile. In several fields it is seen undergoing division, this being often atypical.

At some points certain areas of neoplastic infiltration have undergone a process of necrotic degeneration. In these areas the distinct dark blue stain is replaced by a violet rose hue and by a higher power it is noted that the nucleolus alone has retained its elective affinity for the basic colors. The protoplasm

has become neutrophile as well as the nucleus, whose contours are less distinct.

This tissue has given rise to many histological interpretations and has been variously called sarcoma, epithelioma, endothelioma, lymphadenoma, lympho-sarcoma, and it has even been considered as derived from interstitial cells. In this case I consider that this tissue is what Chevassu has called seminoma, and on the other hand, it coexists with other cell formations in which we see a typical embryoma.

The microscopical study of the cells composing the nodules in the lung, liver and kidney are decidedly different from those composing the seminoma of the testicle, which alone were found in the mass of lumbar lymphnodes.

These cells, which exactly represent the type to which Malassez, in 1878, gave the name angioplastic, are at present considered as being more exactly, not a particular type of sarcomatous cells, but as being *syncytial* cells, belonging to the fetal placenta. If they come into intimate relationship with the vessels it is because they present true angioclastic properties and not angioplastic.

The case here reported may be summed up as follows: a testicle the host of an embryoma becomes the starting point of a double neoplastic infection.

In the testicle, a considerable proliferation of cells of the type of seminoma and these cells which, for Chevassu, are of epithelial type, took an exclusive secondary localization in the lymphatic system to which the testicle is tributary.

On the contrary, in the liver, lung and kidney, the secondary manifestations of an entirely different type are seen to the exclusion of any other.

One is here dealing with what is termed chorio-epithelioma or malignant deciduoma, which formerly carried the name of angioplastic sarcoma.

For that matter, the difference between the two infecting processes could have been at once affirmed macroscopically.

The multiplicity, the considerable size, the hemorrhagic aspect of the hepatic and pulmonary foci at first sight recalled the characters of secondary localizations, so multiple and rapid, of deciduoma of pregnancy.

On the contrary, the lymphatic localization of the semi-

noma type, by its seat and entirely different aspect, could be distinctly distinguished from the preceding lesions.

The microscopic examination has formally proven the duality of the infecting neoplastic elements, so that we are obliged to admit that an embryoma of the testicle was associated with a double infecting process.

Is it possible to indicate the order in which these localizations took place? I believe so on account of the verification made in the various organs of neoplastic cells visible in the lumen of their vessels.

The filiation of the localizations might have been as follows: pulmonary involvement first, on account of the mechanism of the general venous circulation, following which dissemination to the liver and kidney by the arterial system of these two organs. But the presence of infecting cells in both vascular systems of the liver causes us to believe that the generalization in this viscus took place in two ways, namely, by the arterial route as we have already indicated, and by the venous route by the anastomoses of the circulation of the vena cava and that of the portal vein.

CONCLUSIONS

A tumor of the testicle, complex in itself and corresponding to the type of embryoma, may become the starting point of an histologically double neoplastic process. In our case, as in one reported by Jeanbrau and Massabuau, one was dealing with both a seminoma and a chorio-epithelioma or placentoma. The autopsy findings showed that the cells of the seminoma type, generally considered as belonging to the epithelial lineage, were alone localized in the lumbar lymphnodes to which the testicle is tributary.

On the other hand, the cells of the syncytial type characterizing the placentoma were disseminated by the vascular route and became abundantly localized in freely irrigated viscera. A testicle the host of an embryoma can become the starting point of a neoplastic process having an original primary duality. This was histologically verified *in situ* and was confirmed by the electivity of the seat and route of propagation of the secondary localizations, following the histologic type to which each of the elements belong.

REVIEW OF CURRENT UROLOGIC LITERATURE

ANNALES DES MALADIES VÉNÉRIENNES

Vol. VIII., No. 4, April, 1913

1. Syphilis of the Bladder. By Alfred Lévy-Bing and Louis Duroeux. P. 241.
 2. Study of the Law of Profeta by the Sero-reaction of Wassermann. By Berthe Sabin. P. 263.
 3. Neo-salvarsan—Late Hemiplegia—Death. By Dr. Carle. P. 282.
 4. Positive Wassermann After 46 Years of Syphilis; Syphilitic Varicose Ulcers. By Meaux Saint-Marc. P. 289.
 5. Gummatous Syphilitic Infiltration Taken for a Phlegmon. By Meaux Saint-Marc. P. 292.
 6. Primary Lesion of the Nipple. By Drs. Saucher and Giroux. P. 295.
 7. Tabes Aggravated by 606. By Drs. Saucher and Giroux. P. 297.
1. **Syphilis of the Bladder.**

Vesical lesions may exist alone or appear simultaneously with lesions of the skin mucous membranes, or of the other organs. Chancres of the bladder do not occur.

Syphilitic lesions of the bladder present no peculiarities and entail the same symptoms as other types of bladder disease: pain, frequency, occasionally retention, and above all hematuria. Except for the presence of blood, the urine shows no special changes.

In the second stage of the disease the bladder mucosa presents either a local or generalized exanthem or else ulcerations very similar to mucous patches. Tertiary syphilis causes either ulcerations or papillomatous tumors. The ulceration may invade the muscularis and lead to perforation with peritonitis or vesico-intestinal fistulization.

All these lesions can be rapidly cured with mercurial treatment or with mercury and iodides.

Syphilis should always be thought of in the presence of ulcerations of the bladder. The character of the ulcerations, the co-existence of other specific lesions, the previous history and the few urinary changes, all aid in the diagnosis, and in cases of doubt the sero-reaction of Wassermann and the therapeutic test serve to clinch the matter.

2. Profeta's Law and the Wassermann Reaction.

Profeta's law states that a healthy child born of a syphilitic mother cannot be infected either from the breast or from the lips of its mother. This immunity lasts until its organism has been completely renovated by growth. Sabin has studied the Wassermann reaction in both mother and child in twenty-three cases of late post-conceptional syphilis. All the mothers gave a positive reaction and all received specific treatment. Of the twenty-three children sixteen gave a positive reaction during the first week. Five of these showed marked specific lesions and died in a few days. Of the remaining eleven three had cutaneous lesions and were dystrophic; one of them

was jaundiced. Of the total number, seven gave a negative Wassermann at birth. In four the reaction became positive before the second month; in the other three the reaction remained negative up to the sixth month at least.

The author concludes that in the majority of the cases under discussion both mother and child give a positive Wassermann reaction, and even though the latter may be healthy in appearance they should be regarded as syphilitic, their pretended immunity resulting only from the latency of their infection. As far as conceptional syphilis is concerned Sabin concludes that the law of Profeta remains good. As regards post-conceptional syphilis, however, both the Wassermann reaction and clinical experience show that there are exceptions when we deal with infections taking place late in pregnancy, there being undoubted cases of children suckled by syphilitic mothers and developing chancres followed by secondary eruptions after the usual interval. A similar exception, of course, is formed by those children who present no stigmata of hereditary syphilis at birth, who remain well, and whose Wassermann reaction is negative from the beginning.

For practical purposes we may formulate the rule that children with specific lesions and in whom the serum reaction is positive may safely be given to their mothers to nurse. Children born of a woman infected late in pregnancy and who show a positive reaction should also be given to their mothers to nurse. On the other hand, when the child's Wassermann reaction is negative at birth, no matter at what stage the mother was infected, the child should be artificially fed. It would not do to give the infant over to a nurse since there is no proof that it has escaped infection. Antisyphilitic treatment should be prescribed in such cases.

3. Neo-salvarsan—Late Hemiplegia—Death.

The author's case was that of a woman of a nervous constitution who was infected with syphilis by her husband. She received 0.45 grams of neosalvarsan. The week following the injection she developed severe headaches (she had had headaches before the injection), and a month later, anorexia, vomiting, and fever. Following this she suddenly developed a right hemiplegia involving the arm, face and leg (slightly), accompanied by aphasia and fever. She was immediately put on injections of 0.03 grams of benzoate of mercury. In the course of a month the lesions cleared up except for a paresis of the arm which persisted. About two and a half months later the patient came down with a complete flaccid paralysis of the left side, excepting the face, and contracture of the right side. The general condition became much worse. There was relaxation of the sphincters, somnolence, and fever which kept rising to 104. The knee jerks were exaggerated. Biniodide of mercury injections were instituted without avail; the patient went into coma and died.

The author concludes that in cases with a neurotic history, or suffering from persistent and inexplicable headaches it is wiser to avoid salvarsan or neosalvarsan and to use mercury instead.

4. Positive Wassermann After 46 Years; Syphilitic Varicose Ulcers.

The patient contracted syphilis in 1867, and received thorough specific treatment. For the last ten or more years he was suffering from recurring lesions on the legs. For the last four years he had been troubled especially with ulcers on the right leg. There was considerable loss of substance at and above the malleolar region. The circumference was quite circular, the borders somewhat raised but not undermined. The base was violaceous and covered with granulations; the surrounding skin was deeply pigmented. The immediate cause of the trouble was the poor circulation of the limbs, the veins being markedly varicose.

The Wassermann reaction with the cholesterol antigen of Desmoulière was positive. The author believes that the ulcers were largely varicose, in nature thus obscuring the clinical appearance of syphilis. Gaucher has shown that many so-called varicose ulcers are really syphilitic in origin.

5. Gumma Taken for Phlegmon.

The patient developed syphilis in May, 1911. He was put on mixed treatment which was continued at least until February, 1912. In January, 1913, he came to the hospital complaining of an infiltration of the left forearm of six months' duration. There was redness, heat, pain and tenderness and an edematous swelling extending from the wrist to the elbow. Fluctuation was determined near the elbow, the diagnosis of phlegmon was made, and the arm incised. No pus was obtained. The past history was then taken into consideration, a Wassermann made, which was positive, and the patient put on mixed treatment to which he responded.

6. Primary Lesion of the Nipple.

The authors describe a chancr of the nipple which had been overlooked. Its origin could not be determined.

7. Tabes Aggravated by 606.

The case in question was one of incipient tabes in which intravenous injections of salvarsan had the effect of impairing the vision, and causing malaise and the temporary exacerbation of pre-existing painful symptoms.

ANNALES DES MALADIES VÉNÉRIENNES

Vol. VIII., No. 5, May, 1913

1. Chronic "Fibrous" Abscesses Caused by the Ducrey Bacillus. By Drs. Gougerot and Meaux Saint-Marc. P. 321.

2. Mixed Lesions of the Tongue; Syphilis and Cancer. By Drs. Chiolian and Duroeux. P. 333.
3. A Case of Severe Gonorrheal Rheumatism Treated with Neosalvarsan. By Drs. Alfred Lévy-Bing and Louis Duroeux. P. 337.
1. Chronic "Fibrous" Abscesses Caused by the Ducrey Bacillus.

The authors have studied three cases of cold, "fibrous," lymphangitic (chancroidal) abscesses. These fibrous abscesses followed soft chancres which were benign and disappeared rapidly. One case was a mixed chancre resulting from the progressive substitution of a soft lesion by an indurated one. In these cases the Ducrey bacilli ascend along the lymphatics of the penis, causing a lymphangitis with one or more abscesses and finally involving the inguinal glands. The resulting adenitis is of rapid and severe evolution. The authors emphasize the contrast between the mildness of the original chancroid and the gravity of its complications especially when involving the glands.

It is this lymphangitis, situated between the chancre and the odenitis, that the authors have studied in these three peculiar cases. Instead of suppurating, ulcerating through the skin, causing a new chancroid and absorbing rapidly, this type of lymphangitis evolved slowly and underwent a fibrous modification in that there developed a small non-tender, well-defined nodule containing pus in its center. In some cases these abscesses discharged through small fistulae, the serous exudate containing numerous bacilli of Ducrey. These fibrous nodules persisted for a long time without tendency to resorption. The authors have had good results from surgical incision.

Microscopically, a typical "fibrous" abscess is composed of three zones, viz.: an inner abscess cavity containing polynuclears and macrophages, a middle zone formed by a pyogenic membrane consisting of more or less degenerated acidophilic connective tissue cells, occasionally of epithelioid cells, and an outer fibrocellular zone composed of cellular nodules, plasma cells and blood spaces. This structure resembles that of the mycoses. Sougerot has pointed out the three same types of suppurative reaction in both types of lesions, viz.: ecchymatiform, degenerative (occasionally tuberculoid), and fibrocellular (syphiloid.) Differential diagnosis is easily made by isolating the fungus in the one case or the bacillus in the other.

2. Mixed Lesions of the Tongue; Syphilis and Cancer.

The patient was a man of 44. At the first examination the tongue appeared to be covered with partially ulcerated gummata of slow evolution, without bleeding and without general symptoms.

Under the influence of arsenical treatment the gummata began to improve and rapidly cicatrized, but at the same time the epithelial lesions, which had been latent hitherto, came to the fore. Within a

week there appeared intense pain in the ears, the glands increased enormously in size, and the general condition became much worse. Death ensued in three weeks. In this case the neosalvarsan seems to have stimulated the growth of the cancer.

It is of some interest to note that although cancerous tumors are distinguished by a tendency to hemorrhage, the removal of a piece of tissue for bioscopy was accomplished without undue bleeding. This was to be attributed, of course, to the relatively large amount of fibrous tissue thrown out in response to the syphilitic infection.

3. A Case of Severe Gonorrheal Rheumatism Treated with Neosalvarsan.

The gonorrhea was of seven years' standing. There had been three attacks of rheumatism involving several joints and five attacks of iritis involving both eyes. These complications were not always associated with a urethral discharge, but when this was present a new infection was ruled out, as the patient did not indulge in coitus at these periods. During the entire period gonococci were present not only in the joints but in the periurethral glands and in the prostate despite the employment of lavages, massages, and dilatations.

The articular lesions were treated at first with an injection of anti-meningococcic serum but without benefit. Intra-articular injections of electrargol, however, practiced in series, caused the disappearance of bilateral hydrarthrosis of the knees in two weeks.

Following the last rheumatic attack there persisted a sort of chronic state characterized by difficulty of motion and the presence of multiple tender points. At this stage neosalvarsan was injected intravenously and in two days the painful points had disappeared, locomotion was quite normal, and the sensation of "rusty" joints was gone.

JOURNAL D'UROLOGIE

Vol. III., No. 5, May, 1913

1. Anatomic and Pathologico-physiologic Study of Amyloid Degeneration of the Kidneys in the Tuberculous. By L. Rist and Léon-Kindberg. P. 561.
2. Significance of Post-operative Hiccough in Urinary Cases. By G. Marion. P. 581.
3. Congenital Diverticulum of the Bladder with Contractile Orifice. By Leo Buerger. P. 591.
4. Some Cases of Delayed Vesical Cicatrization after Suprapubic Prostatectomy. By L. Thévenot and J. Lacossagne. P. 595.
5. Effect of Thiosinamine in Undilatable Strictures of the Urethra. By Dr. Lévy-Weissmann. P. 605.
6. Congenital Fistula of the Urethra. By Drs. Uteau and Bassal. P. 615.
7. (a) Hematic Cyst of the Kidney. (b) Serous Cyst of the Kidney. By Dr. Giuliani. P. 619.

8. Primary Tumors of the Kidney Pelvis. By Jack Mock. P. 623.
9. The First Drop (of Gonorrheal Discharge). By Jules Janet. P. 639.
1. Study of Amyloid Degeneration of the Kidney in the Tuberculous.

The authors report 12 cases with autopsies and conclude as follows:

1. In the course of chronic pulmonary tuberculosis, amyloid degeneration affects the liver, the spleen, and the suprarenal capsules before it attacks the kidneys. It is not unusual to meet with a massive amylosis of the former, whereas in the latter only a few glomerular loops or some arterioles of the pyramids are infiltrated with the amyloid material.

2. At this stage, unless there is a previous chronic renal lesion, there is, as a rule, no clinical symptom of nephritis. Only albuminuria, or at times an abnormal polyuria, may attract attention.

3. In these cases, a study of the urinary secretion allows us to recognize a very important syndrome: The urea content of the serum is always very low, that of chlorides is below the threshold of normal secretion. Nevertheless the urinary output of both chlorides and urea is sufficient. The constant of Ambard is much depressed. The authors believe that these signs point to an increased ability of the kidney to concentrate,—to a sort of hypersecretion.

4. If a satisfactory histologic examination can be made, there will be seen a peculiar hypertrophy of the cells of the cortical tubules which seems to be the histologic analogue of hypersecretion.

5. From the practical point of view the establishment in a tuberculous subject of the above urologic syndrome will often permit one to make an early diagnosis—before the stage of marked edema, severe albuminuria and incorrigible diarrhea—of amyloid degeneration of the kidneys.

2. Significance of Post-operative Hiccough in Urinary Cases.

Marion reports six cases of hiccough following operations on the urinary tract. In the first case the author could find no cause for the hiccough. The patient died in coma. His condition was aggravated by forcing nutrition. In the other five cases the hiccough disappeared under a fluid (water) diet. In all these cases this annoying symptom coincided with a marked increase in the urea of the blood. In the third case the quantity of urea was 0.8 gm. (per liter) before operation, it was 1.2 gm. or more (for the patient was already improving when the second examination was made) after the operation. In the fourth case, when the hiccough began, the urea was as high as 4.28 gm.; when the hiccough stopped the urea was only 0.83 gm. In the sixth case the urea was 2.4 gm. when the hiccough appeared. The fifth case described was especially interesting. After the first operation, a double nephrostomy, hiccough began on the second day when

the urea was 1.102 gm. per liter of blood. The hiccough stopped and the urea fell to 0.52 gm. Three days after the second operation, a total cystectomy, the hiccough reappeared and the urea went up to 1.25 gm., only to drop to 0.6 gm. when this symptom ceased.

According to Marion these figures indicate a definite causal relationship between azotemia and hiccough. Pointing in the same direction are the facts that all antispasmodic drugs failed to check this symptom and that the patient whom Marion tried to nourish succumbed, whereas those that were given fluids only, recovered. The treatment of choice, therefore, in all such cases, implies the withdrawal of all nitrogenous food. Even milk may be too much for the insufficient kidneys, and Marion puts these patients simply on pure water and a bouillon of legumes. Later he adds purées and compotes.

In regard to drugs, morphine should be strictly avoided. The antispasmodic preparation which seemed to be of the most value was a teaspoonful of syrup of ether containing five drops of tincture of valerian, given every two hours.

3. Congenital Diverticulum of the Bladder with Contractile Orifice.

Buerger has demonstrated by numerous cystoscopic observations that congenital diverticula of the bladder may possess an independent contractile power. At any rate the orifice of such a diverticulum may contract (from an irritation of the wall of the pouch) with such force that distension of the bladder will not produce a relaxation. Buerger believes that such orifices may be responsible for the so-called intermittent migration of calculi whereby the stones, after falling into the bladder, cause the usual symptoms of stone in the bladder, only to become latent on falling back into the diverticulum from which they came.

4. Delayed Vesical Cicatrization After Suprapubic Prostatectomy.

Thevenot and Lacassagne analyze six cases of delayed healing and conclude that the source of the difficulty can, in general, be referred to one (or more) of three regions, viz.: the suprapubic wound itself, the interior of the vesical reservoir, the prostatic region.

The first of these causes is rarely met with. In one of the reported cases there existed a sort of intraparietal diverticulum which prevented an even incision of the bladder. As a result there were formed hinges and flaps which kept up a secondary fistula.

More frequently there is an intravesical obstruction in the shape of a secondary lithiasis or simply a cystitis.

The most interesting cases are those which have to do with the reconstruction of the prostatic urethra. It is the portion of vesical mucosa overlying the prostate and which has to be stripped off the gland during the prostatectomy, that causes all the trouble. Occasionally this flap grows together entirely, forming an impermeable dia-

phragm between bladder and urethra. More often an opening, which may be insufficient, persists in this diaphragm. In some cases this mucous membrane remains as a loose flap which assumes a valve-like function, and being attached to the supraprostatic bar, impedes the outflow of urine.

In other cases the trouble lies further down, in the prostatic urethra itself. Here bands may form, arising as a rule from the inferior wall; or else the urethra may be deformed in various ways, assuming a bayonet-like course, as in one of the authors' cases. Occasionally there is no tendency whatever to granulation in the prostatic pouch which becomes infected and may cause fatal sepsis.

In regard to prophylaxis and treatment the authors suggest that at the time of the original operation extensive stripping of the vesical mucosa should be avoided, redundant flaps should be exercised, and the prostatic urethra should be divided cleanly across, to avoid subsequent band or stricture formation. If the latter do form they can be prevented, if recognized early, by systematic dilatation, otherwise perineal section will be necessary. Valves of the vesical neck should be removed by a secondary cystotomy. If there is epithelialization of the hypogastric fistula, the latter should be excised and the wound sewed up tight.

5. Thiosinamine in Undilatable Strictures of the Urethra.

The author reports two cases in which injections of thiosinamine allowed of the passage of filiform bougies through urethral strictures which were previously absolutely impermeable to all instruments.

The injections were made hypodermatically, not necessarily near the lesion, in doses of 0.2 cg. on three or four successive days. The drug seemed to soften the sclerotic tissues and thus permit of the employment of mechanical procedures such as dilatation and massage.

6. Congenital Fistula of the Urethra.

The authors report the case of a man who for a long time had suffered much inconvenience from a fistulous tract connected with the urethra. The fistula was excised and found to be analogous in structure to the urethra proper which was (congenitally) bifurcated. A microbic infection caused inflammatory changes in the tissues.

7. (a). Hematic Cyst of the Kidney.

The patient was a woman of 62. She presented the signs of tumor (probably cancer) of the right kidney. At operation—nephrectomy—the kidney was found to consist of two parts, an upper, normal, and a lower larger portion which consisted of a large sac full of clots and fibrin. There was no neoplastic tissue.

7. (b). Serous Cyst of the Kidney.

A woman of 38 presented a large tumor of the right kidney.

Catheterization of the ureters showed that there was no secretion from the right side. The diagnosis of a closed hydronephrosis was made. Nephrectomy was done and the lower part of the organ was found to consist of a closed sac containing a lemon yellow fluid free from urea. There was no communication with the ureter. The rest of the kidney was atrophied but otherwise normal. The author is unable to account for the non-functioning of the organ. He thinks that a partial nephrectomy could have been done successfully.

8. Primary Tumors of the Kidney Pelvis.

In this thesis, Mock reviews the general subject of kidney pelvis tumors. These growths, when primary, are developed almost entirely at the expense of the epithelium. Tumors arising from other tissues present no peculiarities and behave like sarcomas of the kidney. Epithelial tumors may be classified pathologically as papillomas, papillary epitheliomas, non-papillary epitheliomas. The epithelial tumors present a clinical syndrome characterized by hematuria, tumor, and pain; sometimes by intermittent hematuria. Diagnosis is made by the routine laboratory methods of urinalysis and by the special explorations peculiar to urinary surgery. The most important means is ureteral catheterization which permits us to collect the retained fluid, to measure the capacity of the pelvis, to determine whether there is hematuria on distending the pelvis (an important test), and to determine the functional capacity of the presumably healthy kidney.

The diagnosis once made, immediate operation is indicated. The operation of choice is a complete nephro-ureterectomy by the lumbar and lateral routes.

A study of the statistics show that there have been recoveries or long periods free from recurrences.

9. The First Drop (of Gonorrheal Discharge).

If the patient discovers the first drop during the day time he should at once go to a physician (before urinating). If he cannot resist urinating he should smear the drop on a glass slide or on a visiting card and bring it to his doctor, who will then be able to make a diagnosis even before the second drop has formed, and institute abortive treatment. If the first drop is discovered too late in the day for consultation with a doctor, the patient should collect it himself as above described, and make an instillation with a Samariter of several drops of a 20 per cent. solution of argyrol or protargol, into the fossa navicularis. If no Samariter is available the patient should give himself a copious irrigation of a 1 to 4000 solution of potassium permanganate. In the latter case, the gonococci having been distributed pretty well throughout the urethra, an abortive treatment with argyrol the next morning is out of the question, so that the lavages will have to be continued.

If the patient is travelling and beyond the reach of medical assistance he should, if competent, commence abortive treatment with argyrol, and follow this up with permanganate lavages. If he cannot do this, he should take 6 to 9 capsules of santal daily until he can obtain the services of a physician.

When the physician obtains the first drop he should distinguish between a true specific (gonorrheal) urethritis, and a urethritis from other causes and institute the appropriate form of treatment.

In women the first drop may either be obtained directly or by being caught in a cotton tampon left between the labia over night.

ZEITSCHRIFT FÜR UROLOGIE

Vol. VII., No. 5, 1913

1. Clinical Observations on the Action of Gonococcus Vaccine in Chronic Gonorrheal Arthritis. By P. Semenow. P. 349.
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1. Action of Gonococcus Vaccine in Chronic Gonorrheal Arthritis.

Semenow reports in detail six cases in which the vaccine was used. He comes to the following conclusions:

1. Polyvalent gonococcus vaccine deserves to be regarded as a specific in the treatment of chronic gonorrheal arthritis.
2. Focal reactions which appear upon the first injection of gonococcus vaccine are constant phenomena.
3. The polyvalent gonococcus vaccine is of value in differentiating between chronic gonorrheal arthritis and other similar disorders.
4. The vaccine controls the pain in chronic gonorrheal arthritis.
5. Continuous use of the vaccine will cause a constant fever to subside to normal.
6. A temperature ranging between 37° and 38° (98.6 and 100.4) is no contraindication to vaccinothrapy.
7. In some cases the vaccine injections increased the discharge from the genitals.
8. Untoward results are disturbances of intestinal function, chiefly diarrhea.
9. It is not necessary to control the vaccinothrapy by the Opsonic Index. The clinical picture is a sufficient guide when carefully followed.
10. A clinical cure can be expected in 6 to 16 weeks after the injection of 8 to 20 doses of polyvalent vaccine. At first 0.2 to 0.8 cc. are given at intervals of 4 to 6 days, later 0.8 to 2 cc. at intervals of 6 days to a week.

11. It is very rare to find that gonococci disappear from the genital discharges after the employment of the vaccine.

2. Preservation and Sterilization of Flexible Instruments.

Dufaux's article is a reply to Hagen's paper which appeared in Vol. VII., p. 13, of the *Zeitschrift* and was abstracted in the April number of this journal, p. 218. Dufaux claims that not only is the spontaneous evaporation of formalin, formalith, or trioxymethylen insufficient in degree to effect a satisfactory sterilization of elastic catheters within a reasonable time, but that even evaporation aided by heat is sufficient to penetrate the lumen of the smallest catheters and cannot be relied upon to sterilize them. In addition, the disinfectant material cannot readily be removed from the instrument before use, as has been claimed, but exerts a distinctly irritant action not only on the mucous membranes of the patient but on those of the respiratory system and eyes of the physician as well. Not only do the gases fail to disinfect, but they actually injure soft instruments and also metal ones when these are preserved in such an atmosphere.

As the best device for the preservation, in sterile fashion, of the instruments under discussion, Dufaux draws attention to the "catheterostat" described by himself (*Zts. f. Urologie*, Bd. XVII., H. 2, 1906). Although this vessel is small,—it holds but 30 instruments—it is so constructed that the desired piece can be located before opening the lid and the possibility of infecting the case during the removal of an instrument is thus reduced to a minimum.

3. Autoserotherapy in Hydrocele.

The author has treated 5 cases in this manner, of which 2 were entirely cured after one subcutaneous injection of the serous exudate. A third patient required 4 injections; the other two showed recurrence of the condition after temporary improvement.

The technic is the following: Five to twenty cubic centimeters of exudate are withdrawn from the hydrocele through a large tube. The last 2 cc. are injected with a small needle into the subcutaneous tissues of the thigh. As a rule one such injection is followed by an appreciable diminution in the size of the tumor. There is no local or general reaction from the injection. The author recommends this treatment where a radical operation cannot be done.

4. Universal Irrigation Attachment.

The author describes an attachment whereby the inflow and outflow tubes are so arranged that during irrigation or injection of the bladder the solutions used are not infected by the outflowing urine as is the case in the usual instruments.

ZEITSCHRIFT FÜR UROLOGIE

Vol. VII., No. 6, 1913

1. Casuistry and Operative Management of Supernumerary Aberrant Ureters. John Hartmann. P. 429.
2. Specificity of Staphylococcosis of the Urinary Tract. By Berthold Goldberg. P. 447.
3. Muscular Atrophy, Muscular Rheumatism, Arthritis, Keratosis of the Soles of the Feet in a Gonorrheic Patient. By I. F. Selenow. P. 476.

1. **Supernumerary Aberrant Ureters.**

Supernumerary aberrant ureters present a distinct clinical picture. Incontinence arising from this source can be cured only by operative procedures. In such supernumerary ureters emptying into the vestibulum, a typical vaginal ureter-implantation is the method of choice.

2. **Staphylococcosis of the Urinary Tract.**

Staphylococcal infections of the urinary tract have the following points in common with infections due to other sources:

- (a). All grades and localizations of the disease may be produced.
- (b). The etiologic factors may be both exogenous and endogenous.
- (c). Ascending pyelitis and pyelonephritis occur rarely when there is urinary retention. On the other hand descending hematogenous pyelitis and cystitis of staphylococcal origin are much more common than has been supposed.

Staphylococcal infections are distinguished from other infections of the urinary tract by the following special characteristics:

- (a). If treated early and properly they are easily cured and therefore of short duration.
- (b). Chronic staphylococcal mono-infections are rare; many of these cases are primary phosphatic diatheses with secondary staphylococcal infections.
- (c). Staphylococcosis often begins and continues with albuminuria.

(d). All forms of staphylococcal infection are observed as a complication of and sequel to gonorrhea.

(e). The migration of staphylococci out of the urinary tract into the blood and into the kidneys is especially dangerous to life.

3. **Generalized Systemic Gonorrhea.**

Selenow's patient contracted a second attack of gonorrhea and ran a course of about four months with fever, myocardial weakness, swelling of various joints, muscular atrophy, and perosis of the soles. That the muscular atrophy was not determined by disease of the corresponding joints is proven by the fact that the muscles of the

entire extremity were affected and not only those inactivated by the arthritis. Moreover, in a similar case, there was no muscular atrophy whatever, despite the fact that the arthritis lasted over a period of months. For the above reasons and because of a general depression of the neuro-muscular excitability, changes in cutaneous sensitiveness, and the presence of the keratoses, the author assumes the existence of a disease of the central nervous system in this case.

ZEITSCHRIFT FÜR GYNÄKOLOGISCHE UROLOGIE

Vol. IV, No. 2, April, 1913.

1. Control of Urinary Retention with Pituitrin. By F. Ebeler. P. 55.
2. Disease of Bladder Associated with Inflammatory Disease of the Adnexa. By Emil Haim. P. 63.
3. Extravesical Opening of the Ureter in Women. By T. P. Hartmann. P. 69.
4. Case of Unusual Calculus Formation in a Foreign Body. By S. W. Maly. P. 89.
5. Foreign Bodies in the Female Bladder. By Joseph Senge. P. 91.

1. Control of Urinary Retention with Pituitrin.

Ebeler has obtained excellent results with the use of this drug in 45 obstetric and gynecologic cases. In all of these women the usual aids to spontaneous urination had been employed without effect; a few had to be catheterized. The intramuscular injection of 1 c.c. of the drug was followed within 10-15 minutes, as a rule, by an increasing sense of discomfort in the hypogastrium and then by voluntary, normal urination. In some cases, however, urination did not take place for several hours (as long as 11 in one case). It is important to wait until the bladder is as nearly full as possible, as otherwise the action of the drug is not certain. Ebeler has waited as long as 16 to 36 hours after the last urination before making an injection. Once urination has taken place spontaneously after administration of pituitrin there is no more retention, as a rule, and voidings proceed regularly in a normal fashion.

Pituitrin has no effect on the empty bladder. The drug empties the bladder entirely. In addition to its effect on the musculature through the vesical nerves, pituitrin has a diuretic action to which the author attributes the actual emptying of the bladder. It is the gradual but steady filling of the already distended bladder, he claims, that furnishes the effectual stimulus to complete evacuation.

2. Bladder Disease Associated with Inflammations of Adnexa.

Haim reports two cases and concludes that purulent tumors of the adnexa may cause severe bladder changes, such as gangrenous cystitis with enormous dilatation and characteristic diverticulum formation (cys-

tocele posterior). In view of these complications conservative treatment of diseases of the adnexa should not be carried too far.

3. Extravesical Opening of Ureter.

Hartmann's patient presented a small bladder-like swelling in the vulva behind and to the left of the urethral aperture. This swelling kept rhythmically discharging urine drop by drop through a small opening. Cystoscopy showed two normal ureteral apertures in the bladder. Injection of methylene blue intravesically failed to discolor the fluid proceeding from the cyst in the vulva. Intramuscular injection of indigo-carmin was followed by excretion of colored fluid from the vulvar orifice as well as from the two bladder orifices. The diagnosis of supernumerary ureter with extravesical opening was made. The third ureter was implanted into the bladder with satisfactory result.

The author discusses in detail the pathology of this condition. He then takes up the diagnosis and the various procedures for surgical repair of the anomaly.

FOLIA UROLOGICA

Vol. VII, No. 8, April, 1913.

1. Contributions to the Surgery of Bladder, Prostate, and Urethral Stones. By Paul Steiner. P. 471.

2. Complex Tumor of the Kidney, of Seminal Type, Together with Nodules of Hypernephroma. By Guiseppe Romano. P. 513.

1. Surgery of Bladder, Prostate, and Urethral Stones.

Steiner presents the new theories of the pathogenesis of lithiasis. Biochemistry, he says, will give us the key to this problem by clearing up the intramolecular relationships of the complicated combinations which give rise to calculi.

The author gives in detail the indications for, and the technic of, lithotripsy and vesical section. He recommends the suture of von Hacker as the primary bladder suture. Before operating the kidney function should be tested in all cases.

Litholapaxy was performed 30 times, suprapubic section 55 times. Of the former series 28 cases were cured, of the latter 52. Two deaths in the second group were due to prostatectomy.

In addition, the author has performed 3 operations for prostatic calculi and seven for urethral calculi, with eight cures in all. In the remaining 2 cases death resulted from uremia. In all, 95 operations were done for calculi of the bladder, urethra, and prostate, with 93% cures.

2. Complex Tumor of the Kidney.

Romano reports a case of renal tumor of complex structure, found at autopsy on the body of a man of 23 with numerous metastases. The

histologic examination showed a connective tissue stroma composed of mature elements as well as of sarcomatous tissue, in which were included epithelial cells so arranged as to resemble glandular ducts. These cells resembled seminal epithelium but spermatogenesis always stopped with the formation of cells of the first order; that is to say, future spermatogones. The epithelial layers surrounding the tubules were completed by cells resembling Sertoli cells.

The author goes on to discuss the different theories explaining the genesis of mixed tumors of the kidney and concludes that, instead of trying to make one theory fit all cases, the various anomalies in these tumors should be explained, according to the case, now by one, now by another genetic factor pointed out by different observers.

In this case the author believes that there was an inclusion of the mesonephric elements, especially of the cranial portion of the mesonephron, which, because of its relationship to the corpus genitale, is sometimes called the genital part of the Wolffian body. He attributes to the rest of the mesonephron the genesis of other neoplastic nodules, found on the surface of kidneys and recognized at histologic examination, as nodules of hypernephroma. In this hypothesis he is supported by various authors (Veldom, Simon, Hoffmann) who claim that the cortex of the suprarenal body comes from the remaining anterior and superior portions of the Wolffian body, and by Janosik and Mikalkowicz, who claim that it comes from the germinal or genital epithelium of Waldeyer.

FOLIA UROLOGICA

Vol. VII, No. 9, May, 1913.

1. Clinical, cystoscopic and pathological studies in two cases of vesical ulceration have conclusively shown that simple callous ulcer of the bladder can and does exist.

2. The clinical symptoms of this condition are intense dysuria, urgency, frequency of micturition with sanguinous and purulent urine. These manifestations become progressively more marked and take a chronic course.

3. The chronicity of this disease and the progressive impairment of vesical capacity speak strongly for the view that chronic cystitis and contracted bladder are often the sequela and outcome of solitary ulceration.

4. The region of the trigone seems to be the favorite site for the chronic indurated type of ulceration.

5. Although designated as simple, and often as solitary ulcer of the bladder, this condition may be accompanied by one or more superficial erosions of the mucous membrane, elsewhere in the bladder interior, lesions which are undoubtedly secondary to the intense cystitis accompanying the ulcer.

6. The most effective and rapid method of curing the disease, as well as the simplest procedure, is the excision of the ulcerated area by means of the author's operating cystoscope and punch forceps.

7. Less radical measures of treatment, such as cauterization with the actual cautery or fulguration, and silver nitrate irrigation are of no avail in this type of ulcer.

8. Histological examination in two cases has shown that the pathology of this condition is rather characteristic, there being a superficial deposit of urinary salts, a layer of necrosis and ulceration, and a stratum of newly formed connective tissue with active evidences of inflammation. The margin of the ulcer show intensely vascular mucous membrane and sub-mucosa.

9. In every case of chronic cystitis, particularly in women, where dysuria, urgency, frequency of micturition are marked, a careful search should be made for the presence of this form of ulcer, for, if it be present, it is more than likely that chronic cystitis, irritable and contracted bladder are secondary phenomena and may be cured by the method advocated.

2. Dr. De Meo's conclusions are as follows:

All strictures of the urethra, resulting originally mostly from simple inflammation, are apt to alter or even destroy the physiological function of the sexual organs.

The urethral obstruction prevents, even in cases where urination is unimpeded, the ejaculation during erection either by the viscosity of the semen or by the altered tone of the urethral walls.

The urethra must remain sensitive, elastic and contractile in order to meet well the normal sexual function; these qualities are decreased by inflammations of the canal and the genetic functions become markedly altered.

Consequences of urethral strictures are: edema of the prepuce, induration of the penis, delayed ejaculation, lessened ejaculatory power of the semen, sterility, impotence, atrophy of the testicles.

In order to improve the genital functions and prevent the testicular atrophy, the obstruction of the urethral canal must be removed; by this means obstructions of the vas deferens, inflammations of the seminal vesicles, inflammatory swellings of the prostate and later contractions of the ejaculatory ducts can be prevented.

Knowing the dangerous consequences of a narrowed urethra and considering the psychic alterations possibly caused by such lesions, it is our duty to be careful in cases of so-called sexual neurasthenia, which in most cases has a pathological base.

Surgical means like urethrotomy, electrolysis, dilatation will—properly applied—cure the patient who would otherwise remain impotent.

MISCELLANEOUS ABSTRACTS

Tuberculosis of the Epididymis: Its Effect Upon Testicle and Prostate.

Dr. J. Dellinger Barney considers this subject very carefully (*Bost. Med. Surg. Jour.*, Vol. 168, No. 25) and as a result of his investigations reaches the following conclusions:

1. In genital tuberculosis the epididymis is the primary focus in the vast majority.
2. Tuberculosis of the epididymis becomes bilateral in 41.6% of all cases and becomes so within six months of the time of involvement of the first side in 30%.
3. The prostate and vesicles are found to be infected in 75%, this infection occurring in the first six months in 30% and in the first year in 54%. It is also shown that this infection takes place quite as often in the presence of unilateral, as of bilateral epididymitis.
4. The urine is pathological in 43% of all cases; bladder irritability is found in 35% and in about half of these it occurs in the first six months.
5. In 33% tuberculosis, past or present, of organs other than those of the genito-urinary tract, is to be expected. The lungs are most often attacked.
6. Clinical observation shows tuberculosis of the testicle in 44%, but the pathologist finds the disease in 66%, and of these 53% are found infected within six months of the onset of the epididymitis.
7. The records of 67 epididymectomies show that no case has yet returned for orchidectomy. The radical operation is, therefore, rarely necessary.
8. Infection of the first and second epididymis as well as of prostate and vesicles, seems to be by the blood or lymphatic streams, but it cannot be denied that in some, infection takes place through the vas by an ascending or descending process.
9. The operative mortality of 147 cases is 2.72%, a general military tuberculosis being the most common cause of death.
10. As it has been shown that the infection may become widespread in the first six months of the disease, operation at the earliest possible date is strongly indicated.

Early Recognition of Tumors of the Bladder

Dr. Arthur L. Chute makes a plea (*Boston Med. and Surg. Jour.*, Vol. CLXVIII, No. 9) for the earlier recognition of tumors of the bladder. For this purpose it is necessary to impress on the general practitioner that any hematuria, even if transient and unattended by pain, may be due to this cause. Urinary bleeding may be due to almost trivial causes, but no one is justified in believing that this is the case until he has definitely found it to be true. In the second place,

the grave nature of so-called non-malignant papilloma is not sufficiently taken into consideration. In the vast majority of cases the papillomas, unless eradicated early, spread so as to involve a great part of the bladder surface, and while not malignant microscopically they are so clinically, for they undermine health by hemorrhage and sepsis, which frequently extends to the kidney. Moreover, when these "benign" tumors have grown to large papillomatous masses their removal is attended by a special danger of embolism, since there are great veins that lead from the growth which seem to be favorite locations for thrombus formation and the detachment of emboli.

Although a single papilloma presents a distinctive picture which it is hard to mistake, a bladder filled with masses of papillomatous growth is often misleading in appearance. With the infiltrating growths, on the other hand, the difficulty in recognition is not in the advanced cases, but in the early ones. These early cases may simply show little raised, rough surfaces, or slightly raised, velvety plaques, and be very difficult to recognize, especially when they are not bleeding.

The author had the good fortune to recognize, some eighteen months ago, a beginning carcinoma in which the initial hematuria had been but three weeks before. This growth, which was nothing but a slightly raised and roughened area, was excised and a few months ago had shown no sign of return. In this case there was no infiltration to be felt, and microscopically the cell invasion was limited to the mucous membrane. These areas are sometimes simply little velvety patches where the bladder has lost its normal surface, with no ulceration and very little, if any, elevation of the surface.

In growths of this kind it is essential to see the lesion and note carefully its location, with reference to some of the landmarks of the bladder, before opening the bladder. This is because of the great difficulty in recognizing a small and non-infiltrated area in the open and collapsed bladder. For areas that are near one ureter he has found it useful to insert a ureter catheter before opening the bladder, simply to have a landmark by which to locate a certain point. This does not apply naturally to the larger growths.

Grave Kidney Lesions with Vesical Symptoms Only

Dr. H. A. Fowler (*Virginia Med. Semi-Monthly*) reports cases illustrating the relative frequency with which serious renal and ureteral disease is diagnosed as mere "cystitis." He emphasizes the following points:

1. A calculus of considerable size may remain for several months in the ureter without producing any localizing symptoms which will attract attention to its presence.
2. The local symptoms produced by a ureteral stone of considerable size may be relatively slight and referred entirely to the bladder

and urethra. In other words, a stone in the ureter may reproduce all the classical symptoms of stone in the bladder.

3. The examination of the urine for the presence of pus in cases of obscure fever should never be neglected. The temperature in such cases may be due to the presence of pus under pressure somewhere in the urinary tract, and there may be no other sign of its presence or indication of its location.

4. As a corollary to the last point it may be added that a persistent pyuria which resists local treatment to the bladder and urethra should arouse suspicion that it may be renal in origin. And further examination should be made to determine definitely the origin of the pus and the underlying cause which produces it.

Among the various diseases of the kidney associated with vesical symptoms only, renal tuberculosis easily stands first. As a result of the extensive investigations of this disease in recent years we have learned not only that tuberculosis of the upper urinary tract is usually primary in the kidneys and is usually unilateral in its onset, but that the condition may be present for a considerable time and produce advanced changes in the affected organ without giving rise to any symptoms whatever on the part of the kidney. Very often the first and only symptom of the disease is the vesical irritability—frequent urination, tenesmus, burning, which may be due either to extension of the disease to the bladder, or to reflex from the pelvis of the kidney without actual involvement of the bladder. In renal tuberculosis, then, particularly in its early stages, or later when the vesical symptoms are predominant, and localizing symptoms are absent, we have to be on our guard to avoid overlooking the actual condition and condemning the patient to a long period of worse than useless therapy.

Frequency of Eruptions After the Use of Balsam of Copaiba.

From the Clinic for Skin Diseases of Prof. Blaschko in Berlin Dr. Fischer reports (*Deutsche Med. Wochenschrift*, 1913, No. 18) upon the frequency with which eruptions were observed in the clinic of Prof. Blaschko after the use of balsam of copaiba in gonorrhea. The direct cause of this observation was the request of the Central Bureau of the Berlin Benefit Institution for the sick to employ balsam of copaiba in place of the more expensive preparations of the Oil of Santal. The after effects of balsam of copaiba had almost been forgotten since the preparations of the oil of santal have been used almost exclusively for the last 30 years. Prof. Blaschko and many other physicians therefore favored the more extensive use of balsam of copaiba. It was soon found, however, that in fully 10% of the cases eruptions, generally with itching, appeared. Not rarely, there were also small petechiae which finally remained as brownish spots. The development of these blood extravasations shows that the process

is not an altogether indifferent one for it proves that balsam of copaiba will either damage the walls of the vessels or else will induce hemolysis.

The author concludes as follows:

"The question is whether these observations justify the further employment of preparations of balsam of copaiba or whether it is imperative to again resort to the oil of santal. The latter is also not free from slight after-effects, usually in the form of gastric disturbance and pain in the region of the kidneys. They are usually, however, so slight and infrequent that they need cause no alarm. With the most popular preparations, santyl and gonosan they are still less frequent. According to my own experience, santyl is tolerated best of all. I have never seen eruptions after giving santyl or gonosan. If others confirm the very common idiosyncrasy of the skin toward balsam of copaiba it would be best to drop this preparation and again return to the preparations of the oil of santal."

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SOME REMARKS ON SARCOMA OF THE PROSTATE

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Sarcoma of the prostate is more frequently met with in the young, and out of a total of forty-one authentic instances, twenty-nine patients were under thirty years of age, while of these, seventeen were less than ten years old. Next in frequency is old age, eight patients being over fifty years old. The exact frequency of prostatic sarcoma is difficult to estimate and the proportion of 4.18 per cent. as given by Heimann of all forms of malignant disease in the male is undoubtedly too low.

Sarcoma of the prostate is far less common than carcinoma, the proportion between the two types of growth varying considerably according to various writers. Thus Engelbach puts it at 14 per cent, Wolff at 29.8 per cent, Socin and Burckardt at 26.9 per cent. and Frisch at from 10 to 15 per cent. This proportion also varies with the age of the subject as sarcoma of the prostate is the only growth encountered in the gland in childhood.

The prostate may be secondarily involved by sarcomatous tissue, but this is infrequent. In the cases which have been recorded the primary focus was in the seminal vesicles in one case, a fibro-sarcoma of the right elbow in another, a sarcoma of the corpora cavernosa in a third, while in a fourth the testicle was the seat of the primary malignant process.

In early life, that is to say in children and adolescents, the commencement of the process is unnoticed, and it is only after a certain length of time that the tumor, from its size, compresses

the neighboring organs. Urinary disturbances are usually the first symptoms, the patient being suddenly seized by an attack of complete retention, the attack being sometimes preceded by dysuria or incomplete retention. If a catheter is not passed the patient will finally urinate from overflow, but if the instrument is passed with regularity, micturition may become normal again for some time. Catheterization may be a difficult matter because the urethra is usually elongated, irregular or compressed in some parts.

Compression of the rectum by the neoplasm results in disturbances of defecation. At the beginning constipation is more likely to be met with, while later on diarrhea or even incontinence arises. Early in the process, the neoplasm develops without causing pain, but pain usually follows disturbances of the micturition or the passage of feces.

If the subject is examined at this stage, a more or less marked enlargement of the lower abdomen will be noted, this being the distended bladder, while not infrequently one will find some distention of preanal portion of the perineum. There may also be a generalized edema, or localized in the scrotum or perineum. In a case reported by Edington (*Brit. Med. Journal*, Sept. 18, 1909) the edema involved the left thigh to the knee.

By palpation the growth gives a more or less distinct sensation of fluctuation, to such an extent, in fact, that some surgeons, believing that the process was an abscess, have made an incision in the growth through which the neoplastic tissue rapidly developed. Rectal digital examination reveals a rather hard mass in the prostatic region, which may also extend into the pelvic cavity. There may be some rectal ulceration, and in this case pieces of the neoplasm can be removed. Quite often the lymph-nodes in the iliac fossa or inguinal region are enlarged and at this stage of the process the subject will be found in fairly good physical condition, but as soon as the urinary disturbances show themselves, the evolution of the process becomes rapid, because with the development of the neoplasm, symptoms of infection become added. The urine is cloudy and micturition frequent and painful. The infection attains the ureters and kidney, which at autopsy often show lesions of pyelonephritis.

The growth increases rapidly, involving the bladder, obstructing the urethra or ureters. At the same time the physical condition of the patient becomes poor and death occurs within

a year from the time the urinary disturbances make their appearance. In elderly subjects these symptoms are far less marked. The increase in size of the growth is much less considerable, while the abdominal distention is slight and the urinary disturbances less pronounced, being in reality quite similar to those of prostatic hypertrophy. Unlike the case in children, an attack of complete retention is exceptional. Catheterization is easier, while the neoplasm projects into the rectum and by compression there ensues a high grade constipation. In a case reported by Marsh (*Trans. clin. Soc. of London*, vol. xxx) symptoms of intestinal occlusion were so marked that an iliac colostomy was done.

The slow evolution of sarcoma of the prostate both in children and adults has allowed the surgeon to extirpate the growth and thus prolong the life of the patient and this fact also explains why metastatic foci have been met with in the scrotum, axilla and even in the skin of the forehead as in a case reported by Paschkis before the Imperial Society of Vienna in 1909.

Referring now to the pathology of sarcoma of the prostate, it may be said that the gland is increased in size and that this increase is more marked in children than in the adult. The volume of the neoplasm varies, in some instances quite small, in others it may reach the size of a child's head. It occupies the pelvis, rising above the pubis and occasionally reaching the umbilicus. Instead of invading the abdomen, the process may develop towards the perineum causing the latter to project.

Generally the neoplasm is oval in shape; sometimes it is papillomatous so somewhat lobulated. It invades the entire prostate in most cases, but there are some in which either the right, left or middle lobe have been more particularly involved. Its surface is commonly smooth, sometimes irregular and the growth is distinctly limited as if encapsulated. In consistency it is sometimes soft, even to the extent of fluctuation, at others hard, or areas of fluctuation may be detected in the hard mass.

On section, the neoplasm is a glistening white with a smooth surface interwoven by fibrous bands, while in the center or at the periphery cystic cavities and hemorrhagic foci undergoing regression are met with, occasionally also large blood vessels. The neighboring viscera are adherent to the growth or involved by it, the bladder and rectum being naturally the first to suffer. The bladder is compressed and pushed forward and upwards; it may be dilated even reaching the umbilicus. Exceptionally it is con-

tracted. Its wall is usually healthy or slightly infiltrated by neoplastic cells. The mucosa covers the projections formed by the tumor. The latter may be pedunculated and are above all seated in the trigonum or vesical neck. The urethra may also be involved but only in the prostatic portion. It is strictured or deviated to one side while at these points its walls will be found infiltrated or its lumen obstructed by polypous growths.

The rectum is likewise compressed by, and adherent to the neoplasm. The rectal mucosa is generally normal, only two cases of ulceration having been recorded to my knowledge.

The seminal vesicles and vasa deferentia are normal in most cases, but may be infiltrated although rarely invaded by sarcomatous tissue. The sarcomatous tissue sometimes invades the pre-rectal or retroperitoneal cellular tissue, the small intestine, colon, omentum, peritoneum or even the pelvic bones.

The upper urinary tract is rarely involved but undergoes secondary lesions due to the effects of pressure and infection. The ureters become dilated, likewise the renal pelves, while the kidneys are sometimes atrophied. Pyonephrosis or pyelonephritis have been met with.

Generally the lymphnodes are intact, particularly in children. Those first involved are the sacral nodes, then the inguinal, and in one case those of the cervical region were the seat of metastases. Metastases occur especially in the lungs and pleura, then the bones, pancreas, dura mater and the liver, infrequently in the spleen and gastric mucosa.

Having thus briefly discussed the pathology of sarcoma of the prostate, I will in a few words consider the differential diagnosis and treatment. A sudden attack of retention of urine in a child and the appearance of a tumor in the hypogastrium or perineum followed by disturbances in the physical condition, terminating rapidly in cachexia, will put the medical man in the way of reaching a correct diagnosis if he will only bear the prostate in mind. In elderly people the disturbances of micturition and defecation, with evidences of cachexia should also be signs of warning. In carcinoma of the prostate the tumor is harder to the feel than sarcoma. The former gives rise to hematuria and when it extends outside of its capsule is apt to compress the sacral plexus. In simple prostatic hypertrophy the dysuria is more pronounced, while the gland is more regular in shape and

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is less disposed to cause pressure on the rectum. And lastly, elongation of the prostatic urethra is much more marked.

The differential diagnosis of sarcoma of the bladder is frequently a matter of some difficulty, particularly when the growth develops in the fundus and in young children. In adults rectal examination will show that the prostate is not enlarged.

The diagnosis of perineal abscess will only be made when a careless examination has been resorted to, while in hydatid cysts of the small pelvis the evolution is slow, and if search is made for eosinophilia and the fixation reaction of Weinberg and Parvu is restored to, a positive diagnosis of hydatid cyst will be made.

Sarcoma of the prostate is so malignant that modern surgery is powerless to stop the evolution of the process. In children palliative treatment is alone indicated, but a suprapubic cystostomy is useful for retention. All attempts at radical interference have resulted in disaster.

In adults the neoplasm undergoes its evolution more slowly so that there is some hope in a radical operation. Personally I feel that when the growth is large, perineal prostatectomy according to Young's technique is clearly the proper operation, but when the neoplasm develops towards the bladder the suprapubic route is the one to follow without hesitation. The outcome in any case depends on an early diagnosis.

A CASE OF ADENOMA OF THE BLADDER, WITH REMARKS ON THE PATHOLOGY OF THE AFFECTION

By HENRI BRIDOUX, M.D., Nice, France.

B. F. aet. 48 years, a laborer, entered the service of Dr. Rochet at the Hôtel Dieu, of Lyons. No important hereditary antecedents. He is married but without children. The patient coughs and takes cold easily; no hemoptysis. No venereal history. He states that for some time he has had colic at irregular intervals, two or three times a year, in the iliac fossae but without vomiting or intestinal disturbances. After these attacks he never noticed any sand in the urine. The patient has also suffered from an otitis a year ago from which he recovered by the use of boracic acid irrigations.

The patient states that the urine was always thick and a sediment is rapidly deposited at the bottom of the vessel. Three years ago an hematuria occurred suddenly without pain or premonitory symptoms. The blood was well mixed with the urine. Since this time blood has been present frequently and of late it is always in the urine; micturition is frequent and abundant; no retention; no incontinence. Patient has never been explored and all treatment has been a simple milk diet.

On entering the clinic, examination gives the following data: The kidneys are not enlarged or painful to pressure; deep palpation in the vesical region is painless. Rectal examination is painful on account of a fistula but the fundus of the bladder and prostate are not sensitive. Exploration of the bladder with the sound reveals no calculus nor neoplastic mass but the bladder surface feels irregular. The fundus is not depressed.

Micturition profuse (two to three litres) occurring about every two hours without pain, but there is hematuria each time. Usually the blood appears at the end of the act but if the patient has exercised much it is mixed with the urine throughout micturition. When the hematuria is occasionally absent, the urine presents a cloudy purulent deposit. Sometimes there are large blood-clots.

Besides these vesical disturbances, the general health of the patient is bad; he complains of weakness and loss of weight. Digestion is difficult. Auscultation of the lungs leaves some doubt

as to the integrity of the respiratory apparatus; signs of bronchitis and emphysema without distinct lesions of tuberculosis. A soft systolic blow at the apex of the heart.

The patients' breath is fetid and the anal fistula, which is in full activity, gives exit to quite a large amount of pus.

Although the kidneys were not distinctly increased in size nor painful by palpation, it was noted that the patient presented a certain number of symptoms of chronic nephritis. There was a polyuria of about four litres in twenty-four hours, cramps in the calves of the legs, dead finger sign, occipital cephalalgia and little but repeated epistaxes.

Operation was done five days later. A transverse suprapubic incision was made in order to have more light in the operative field. The bladder was freely opened and the borders of the incision were temporarily sutured to the skin in order to have easy access to the interior of the bladder. The surface was found literally riddled with small papillomatous growths, varying in size from that of a small hazel-nut to that of a walnut, while on the floor of the bladder a small area was occupied by still larger tumors.

Removal of all the growths that could be seen or felt was accomplished with the curette and thermocautery and as the oozing was severe the vesical cavity was packed for ten minutes with iodoform gauze. The remainder of the operation was carried out as in ordinary suprapubic cystotomy and a large drain inserted.

Everything went well for the first thirty-six hours following, when the patient began to vomit and the pulse became weak and very rapid. Temperature reached 39.3°C . Vomiting became incessant and no treatment had any effect. The patient became weaker and died four days after the operation with vomiting continuing to the last.

Autopsy, macroscopic lesions. The cavity of the bladder was small and contained some cloudy urine and some débris of the mucosa due to the cauterization and curettement. Otherwise, the surface of the bladder was clean and only a very few remains of the papillary productions could be found at the fundus, so that it was evident that the curettement had been quite complete. The walls of the bladder were slightly thickened. There was no appreciable hyperemia at the bladder neck or prostate and at this spot the surface was smooth and free from any growth. It appeared that the papillary masses were distinctly

limited to the anterior and posterior surface and fundus of the bladder without involving the prostatic region. The urethra was normal.

The ureteral orifices were thickened and when opened they led into dilated ureters. After a narrowing of about two centimeters in length of the terminal portion of the ureters, a large dilatation of the tubes on both sides, equal to the circumference of a finger, was discovered. The ureteral walls were thin, and above the strictured portion contained small cysts projecting into the lumen. These cysts varied in size from a pin's head to that of a small pea; their walls were thin and translucent, their contents were cloudy and purulent.

The dilatation of the ureters, which was quite regular, extended up to the renal pelves, which were also manifestly dilated. The renal glands presented the aspect of polycystic kidneys with a purulent contents, due to dilatation of the uriniferous tubules and calices. On section, the kidneys were found riddled with small whitish granulations, which when opened with the point of the knife, allowed the escape of concrete pus. The cortical substance was very atrophied. The contents of the renal cysts were purulent and manifestly connected with the cavity of the distended calices, pelves and ureters. The urine filling them was purulent. No inflammatory lesion of the peritoneum; no pulmonary tuberculosis.

Microscopic examination of fragments of the bladder removed at operation. The superficial layer is composed either of vesical muscle which had accidentally desquamated its epithelium or verrucous neoplasms. These were formed by an agglomeration of tubulated prolongations, grouped together in such a way as to give the aspect of a polypous vegetation projecting above the surface of the mucosa. These tubules open directly at the surface of the mucous membrane; their lumen, irregularly canalculated in the superficial part, was often dilated in the deeper portion and formed true cysts. These were lined by a continuous layer of large cylindrical cells, disposed in a single layer. These cells became flattened at the level of the cystic dilatations, which made them resemble the endothelial cells of the blood-vessels. The contents of the cystic dilatations were varied, sometimes being an amorphous substance, at others agglomerations of large, flat cells, blocking up the lumen of the tubule.

The stroma penetrating between the glandular tubes was

composed of young connective tissue in which large vessels with fragile endothelial walls were seen.

In the deeper layer, in contact with the muscle, numerous areas of penetration of the epithelial elements were observed, where the tubules, instead of being cystic, became thin and at some spots even gave the picture of an epithelioma going on to infiltration. In some sections the orientation recalled that of an infiltration of the alveolar type or of carcinoma. But in all these changes the epithelium could be recognized and followed and admitted of no doubt of it not being of the cylindrical glandular epithelium type.

Vessels abounded in the polypoid productions, the walls of the superficial vessels being eminently friable, as was made histologically evident by numerous interstitial hemorrhages. The vessels of the deeper parts had thick walls and around them were seen large lines of embryonal cells.

There were no lesions of a tuberculous process, the deeper layers presenting signs of chronic inflammation with sclerosis, an increase in the thickness of the fibrous bundles and atrophy of the muscle fibers.

Kidneys. There was considerable dilatation of the uriniferous tubules, but the glomerulae were only slightly changed. Interstitial inflammation was not marked, a rather surprising thing when the suppuration present in the excretory ducts is considered.

To sum up, the diagnosis was a tubulated glandular adenoma of the bladder undergoing proliferation, but one could not conclude than there was a true malignant growth in the microscopical sense. The form of the cells was too typical and recognizable to allow one to admit an epitheliomatous transformation. The old vesical inflammation had disturbed the glandular epithelial proliferations in the deeper portion of the submucosa and this produced the appearance of an epitheliomatous infiltration.

The interstitial nephritis was of long standing, while the dilatation of the ureters and renal pelves extending to the calices and uriniferous tubules was in all probability the result of the sclerosis of the walls of the bladder around the ureters in their passage through the wall. Perhaps, also, it may have been provoked by the growths situated near the ureteral orifices, thus causing a certain amount of obstruction.

PATHOLOGY

Annexed to the epithelial layer glands are to be found in the vesical mucosa. Henle describes them as follows: "In the portion of the urethra the nearest to the bladder, small glands, similar to those lying around the verumontanum, exist. In old subjects they are partially filled with brownish concretions, similar to those found in the prostate. From such glandular accumulations, which to the naked eye may resemble crypts, sometimes being found in the trigonum, it is very likely that adenomata may arise."

Henle later on confirmed this opinion, in his second work on anatomy, relative to the existence of these little glands which have the appearance of prostatic glands and which are situated in that portion of the urethra the nearest to the mucosa of the bladder. Other German anatomists, Hyrtle, Leuschka, von Meyer, Gegenbaur, Kölliker, Brosike, and Rauber do not mention them.

Wittzack is not of Henle's opinion and does not believe that the vesical glands have a prostatic origin, basing this opinion on reported cases of adenoma. It seems unlikely that these tumors take their origin from prostatic hypertrophy since Billroth showed that "prostatic hypertrophy is never the result of an adenomatous process, but only from an ectasis of the acini and epithelial hypertrophy, the increase in size of the prostate being due to the formation of a diffuse myoma."

I would also remark that in most of the reported cases the tumor developed elsewhere than in the trigonum, some very far away from it, so that it seems difficult to understand their evolution if a prostatic origin be admitted. I am more inclined to accept Wittzack's opinion, relying on Küster's authority, who considers adenoma of the bladder as a glandular neoformation of this organ.

A consideration of the opinion of various observers relative to the glands of the bladder will be given, because they are of the highest importance for the pathogenesis of the process. Henle does not mention glands in the bladder, likewise von Meyer and Gegenbaur while Rauber states that the vesical epithelium contains neither tubular mucous glands nor lymphatics. On the other hand Kölliker declares that in the fundus and neck of the bladder "are to be found small pear-shaped glands, formed by a single tube or an agglomeration of tubes." They have a cylindrical epi-

thelium and contain a clear mucus. In pathologic cases they become blocked up by whitish mucus.

Virchow confirmed this opinion and a description of these glands will be found in several German works, such as Hyrtl, Langer, Hulstein, Ekhard. On the other hand, I must point out that Luschka and Brosike, although not admitting a large number of glands in the bladder and believing that the secretion of mucus is principally a function of the epithelium, do not deny their existence.

In the French school, we have Cruveilhier who says "that he has seen glands over the entire surface of the bladder in the form of miliary vesicles. All these glands are the small racemose variety, lined with a cylindrical epithelium and filled with transparent mucus." These glands exist in the normal state not only around the ureteral orifices but also, although less frequently and in another form, in all the other parts of the bladder. Testut admits the presence of rudimentary glands which continue from the urethral mucosa and he adds that "outside of the neck and even the trigonum, similar glands may be found but they are more scattered and rudimentary." Albarran who has also seen these glands gives a detailed description of them in his book, which will be referred to later on.

From this it is evident that opinions vary but that a few deny the existence of these glands. I am of the later opinion and believe the histological examination of vesical adenomata can by this fact have a satisfactory explanation.

Although the majority of observers are almost unanimous in admitting the existence of these glands, they are far from accord in their descriptions. Hyrtl, Langer, Holstein, Ekhard and Kölliker, as we have said, consider them as piriform, sometimes having a single tube, at others forming the racemose type, Luschka, Krause, English, Hoffmann, Hermann, Tourneux and Limbech describe simple crypts or small multilobular glands, simply more or less deep invaginations of the lining epithelium.

Albarran, in his famous "*Traité des tumeurs de la vessie*" describes in all detail the glands of the bladder and divides them into two groups. I shall quote what he says *in extenso* as it is of utmost importance:

"In the part of the trigonum near the bladder neck, in man and dog, small depressions of the epithelial layer are seen which represent tubular glands or small racemose glands opening at

the surface by a large and short duct. These glands are situated in the most superficial layer of the submucosa. They possess no membrane of their own but have a simple wall composed of connective tissue; the glandular element is represented by cylindrical, almost pavement, epithelial cells arranged in several layers; these cells do not distinctly mark off the central cavity which has an irregular shape and contains cellular débris. As is seen, they are not mucous glands with well differentiated cells, secreting mucus which the cell throws out by contraction of its protoplasm (like certain glands of the urethra); in the bladder, the mechanism of the secretion is quite different: the cell itself is shed when it reaches the full term of its evolution, and the cellular cadaver forms the product secreted.

"Beyond the bladder neck, one may encounter, although very scattered, glands in other parts of the mucosa; I have even seen them on the anterior wall, when there was no pathological change of any kind. But the other group of glands is much more simple: sometimes there is only a crypt limited to a sinking in of the epithelium, at others it is a tubular gland, whose neck sinks obliquely into the mucous dermis and whose body rests in the most superficial part of the submucosa parallel to the surface of the mucous membrane; often, between the gland and the vesical epithelium one only finds the thin dermis of the mucosa. This second group of glands scattered throughout the mucous membrane presents a structure analogous to those of the first group that I have already described."

I have insisted somewhat at length on the existence and composition of the vesical glands because I desired to establish as completely as possible the opinions of histologists on this subject in order to elucidate the pathogenic conditions of adenomata of the bladder.

In what is now to follow my remarks will refer only to adenomata, without considering the infiltrating or carcinomatous types and I will define, with Albarran, vesical adenoma as follows: a tumor composed of glandular tubes and acini reproducing the glandular vesical type, without ending in a disordinate or ectopic hypergenesis of the epithelial cells.

However, it should be remarked that in many of these intermediary cases existing between true adenoma and epithelioma, it is most probable that a true adenoma was the beginning of the process and it was only later that the growth underwent a trans-

formation into an epithelial carcinoma following the phenomena of degeneration.

All descriptions are patterned one upon the other but I will submit the following: These tumors are composed essentially of an agglomeration of elongated, ramified glandular ducts, lined with a continuous layer of columnar epithelium disposed in a single layer; the ducts open on the surface of the tumor into the bladder.

In the depth, they become invaginated in the submucosa and even into the muscular structure and are seen either as full ducts ending in a rounded extremity without any acini, or in the form of very minute cystic dilatations.

The epithelium lining these ducts is continuous and in a single layer; it is composed of beautiful elongated columnar cells with a large nucleus, even presenting kariokinetic figures; the protoplasm is clear without striation. At the surface of the bladder this epithelium may even take the place of the stratified epithelium or be replaced by it. In the depth at the level of the cystic dilatations it becomes pavement in type, while in the large cysts it even simulates the endothelial cells of the blood-vessels.

The ducts may be empty or contain mucus, cellular débris and desquamated cells.

The stroma separating the ducts is composed of young connective tissue, the vascular element being represented by quite numerous vessels although not attaining the richness found in vascular papillomata. Their fragile embryonal walls render extravasation easy in certain parts of the stroma and at the surface of the tumor.

The submucous tissue, besides the deep epithelial invaginations traversing it, is rich in large well-formed vessels, often surrounded by lines of leucocytes, indicating both a congestive and inflammatory element.

In the cases reported in the literature I have been able to distinguish two macroscopic types of vesical adenoma. Firstly we have the circumscribed type in which the tumor is supported by a large pedicle. In one case it was sessile with distinct borders, while in another the surface was velvety, in consistency soft and fragile. In still another, the surface was smooth and brilliant, the growth round, and only at its point of contact with the walls of the bladder was it covered by incrustations. About five-sixths of this tumor was seated in the bladder wall, so that

it only projected a little under the mucosa. There was no infiltration into the surrounding parts.

In four other cases the growth was diffused. In Cahen's case and my own resides the most interest. In both it was impossible to interpret them microscopically. In Cahen's case the growth was represented by whitish projections of varying size on the surface of the bladder. The smaller ones were round, forming flattened prominences. They were readily distinguished against the red mucosa of the bladder forming a background. In my case the internal surface of the bladder was literally riddled with small papillomatous tumors of varying size, some of which were clustered together forming larger growths. Microscopic examination alone permitted placing these growths in the class of adenoma.

These tumors do not appear to have any predilection for any particular part of the bladder for they have been found at every point of its internal aspect. In size they vary from that of a pin's head to a cherry or walnut. All sizes between these extremes may be found in the same bladder when the growth is diffuse. As to the size of circumscribed pedunculated tumors, Kaltenbach met with one as large as a walnut, while Albarran, without giving the dimensions of the adenoma in case, states that it was large enough to fill the orifice of the bladder neck during life.

Let me here observe that in no case has lymphatic generalization been reported or any metastases in other viscera. The vesical mucosa surrounding these growths is always normal, although some congestion may be present.

As to the condition of the bladder itself, it may be large with rigid walls; sometimes it is small and deep; the walls may or may not be thickened, and it may contain calcareous or phosphatic concretions.

There is usually some chronic cystitis, which may involve all the structures composing the bladder, while the adenoma is limited simply to the mucous membrane. In my case the external aspect of the organ appeared healthy but it presented a chronic inflammation and thickening of the walls.

Some important secondary lesions have to be noted, such as ascending nephritis, interstitial and chronic nephritis, dilatation of the ureters and polycystic kidney, lesions probably due to a constriction of the terminal portion of the ureters in their passage through the bladder wall, which latter had become sclerosed.

SEXUAL IMPOTENCY IN THE MALE

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AUTHORIZED TRANSLATION. EDITED WITH NOTES AND ADDITIONS BY
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[Continued from the October issue.]

CHAPTER XXIV—AZOOSPERMIA

THE most frequent cause of male sterility is azoospermia. Before we concern ourselves, however, with this disease symptom, we will make some preliminary remarks about the properties of the normal semen.

THE SEMEN

The normal semen appearing at ejaculation is an intimate mixture of the secretions of all the genital glands: the testicles, seminal vesicles and prostate.

Each of these secretions seems to be an integral, necessary constituent of the ejaculated fluid which is capable of impregnation. The anatomical position of the excretory ducts of all these glands, of the ejaculatory ducts and the prostatic excretory ducts secures actually an intimate mixing of the secretions. The excretory ducts of the prostate as well as the ejaculatory ducts open into the urethra convergently at both sides of the caput gallinaginis. (George Walker.)

The mixing of the different secretions takes place in the prostatic urethra, and hence it flows toward the bulbus urethrae, whence it is ejaculated by rhythmic contractions of the bulbo-cavernosus and ischio-cavernosus muscles.

The formation of the spermatozoa occurs in the testes; their description here would be superfluous. They are motionless in the region of the testicle proper, the epididymis and the vas deferens, and first obtain their characteristic motility through the admixture of the prostatic secretion as well as the globulin-containing product of the seminal vesicles (Hermann, Hensen, Fürbringer).

The seminal vesicles secrete a gelatinous, granular substance, and have besides their own secretory activity the function of receptacula seminis.

The prostatic glands secrete a milky, watery secretion containing proteid, which is the source of the characteristic seminal odor. The latter originates, according to Fürbringer, from the "basic substance of Schreiner," abundantly present in the secretion, which can also be demonstrated under the microscope as the crystals of Böttcher.

The normal ejaculate is a sticky, viscid fluid, in which in the fresh state gelatinous masses like sago grains abound. The gelatinous character of the semen passes over on long standing into a watery one, by the liquefying of the gelatinous grains, which come from the seminal vesicles and consist of globulins, by means of the testicular secretion. The characteristic stale smell of the semen comes, as has been mentioned, from the admixture with prostatic secretion.

The quantity of ejaculated fluid according to Lodes' measurements amounts to about three or four cubic centimeters,* and contains on the average 226 million spermatozoa.

Under the microscope we see, besides the large number of very active well-developed spermatozoa, the testicular cells as roundish, strongly refracting grains, epithelia from the seminal vesicles, prostate and urethra, brown pigment granules (especially in older persons), large round cells from Cowper's glands (Fürbringer), and finally countless small, strongly refractile lecithin corpuscles in lively molecular motion. These come from the prostatic secretion, to which they give its opalescent character.

AZOOSPERMIA, OLIGOZOOSPERMIA, ASTHENOZOOSPERMIA AND NECROSPERMIA

We call the complete absence of spermatozoa in the ejaculated semen azoospermia; when there are only a few not very motile and partly deformed spermatozooids present, we speak of oligozoospermia or asthenozoospermia; finally we denote the occurrence of well-formed, but motionless zoosperms necrozoospermia.

Azoospermia may result from the fact that no spermatozoa are produced, or because the testicular fluid meets insuperable obstacles on its way to the urethra, so that the ejaculated fluid consists only of the secretions of the other genital glands.

* Five to 15 would be more correct.—W. J. R.

We find the first group of azoospermia as either a congenital or an acquired condition; congenital lack of both testicles of course produces azoospermia, but impotentia coeundi is perhaps always present also, for the whole sexual development fails as a rule in such cases.

Congenital absence of the epididymes and vasa deferentia may, however, cause a permanent azoospermia, in which the ability for coitus and ejaculation are fully preserved; so may congenital displacement of the testicles.

Acquired azoospermia and the loss of spermatogenesis play a more important rôle. A temporary absence of the spermatozoa is often described as a physiologic phenomenon after repeated coitus. A case reported by J. Casper is most often cited, in which the patient while indulging in daily coitus showed complete azoöpermia, but after several days rest had again a normal seminal ejaculation. Lodes also observed in artificially repeated ejaculations in the dog that the spermatozoa in the ejaculation steadily diminished until they entirely disappeared; and this favors the assumption of a physiologic azoöpermia. Fürbringer, however, rightly considers this a relatively rare occurrence. In two cases, where coitus was repeated at short intervals, we found no marked diminution of the spermatozoa. Moreover, in frequent involuntary seminal losses, pollutions and spermatorrhœa, which were often regarded as causes of azoöpermia, the patients do not show this abnormality at all typically.

[Some authors distinctly deny that frequently repeated coitus has any influence in diminishing the number of spermatozoa. Vecki, basing himself on numerous microscopic examinations of the semen of people who indulged in very frequent coitus (daily or two or three times a day), goes even so far as to state that "with persons who have accustomed themselves to frequent intercourse and have the power to do so, the number of spermatozoids *increases* with the frequency of coition, instead of decreasing, as supposed by the older authors. It may be concluded also that the spermatozoids become very numerous, well developed, lively and energetic only when coition is repeated." I must state, however, that I had occasion to ex-

amine the semen of two men who had performed coitus eight and eleven times in twenty-four hours; the semen after the last coitus in both cases was very thin, watery and contained *no* spermatozoa.—W. J. R.]

It is certain that in isolated cases azoöspemia occurs congenitally without the least abnormality being demonstrable in the semen-producing organs, and in which sexual abuse is out of the question as a factor in the absence of spermatozoa. Hirtz, Fürbringer, and Finger described such cases; the last reports six cases, all in Russian Jews. We have also repeatedly made the same observation, and found this permanent azoöspemia among several Polish and Russian Jews. We will not discuss, whether this state is congenital or whether unknown causes are to be held responsible for the destruction of spermatogenesis. The surely established occurrence of absolute congenital azoöspemia is a convincing refutation of the assumption of P. Müller and others (including Fürbringer), "that the production of semen in the testes gives the first impulse to sexual desire and that the center for erection is identical with that of the production of semen." This old view has also recently been completely refuted by experience with X-ray treatment of the testicles.

Temporary azoöspemia has been observed in the course of various acute febrile diseases (typhoid, sepsis, scarlatina, etc.), also after severe chronic diseases and as a sequela of chronic infections and intoxications (alcoholism and morphinism).

Syphilis particularly is declared, by Lewin, to cause azoöspemia in 50 per cent. of the cases, even where the testicle is free from specific changes. The exact investigations of Hanc contradict this assertion; he found this anomaly only rarely. The large number of cases of azoöspemia found by Lewin and von Zeissl in the course of syphilis might be referred to organic changes of a gummatous nature in the epididymes.

It should be mentioned here that, like the physiologic azoöspemia after repeated coitus, Schlemmer observed a diminution and finally a disappearance of spermatozoa in the semen after long marches.

Severe affections of the testicular parenchyma are often the

cause of azoöspemia. Bilateral gummatous orchitis, tuberculous foci in the tests, carcinoma and other malignant new-growths in the testes can destroy spermatogenesis.

AZOOSPERMIA FROM RONTGEN-RAY THERAPY has acquired special significance in recent years.

In the year 1903 Albers-Schönberg in Hamburg first reported a hitherto unknown effect of the Röntgen rays upon the animal organism. If one exposes male rabbits or guinea-pigs for a long time to the intense action of the Röntgen rays, they lose the ability to reproduce. They differ in no way, however, from normal animals as concerns the sexual instinct and capacity for coitus.

The sterility which results from the irradiation is due to necrozoöspemia, which passes over after some time into complete azoöspemia. Friebe reported in the same year on the histologic findings in the testes of such irradiated animals, which do not show a real atrophy of the testicle but only an atrophy of the epithelium of the seminal tubules. Scholtz and Seldin also confirmed this result. "It is intelligible that the Röntgen rays have such a marked effect upon the testicles, for we know already from the action of the rays upon the skin and upon carcinoma that they especially affect those cells which are sensitive and delicate and are in the process of active division and transformation." Scholtz found the same effect upon the testicles after irradiation with radium; azoöspemia occurred 20 days after an irradiation continued for 100 minutes.

Philipp of Bonn irradiated human testicles with the Röntgen rays in two cases with the intention of producing sterility.

In the first case it was desired, on account of severe tuberculosis in the patient, to make his marriage childless for social reasons. Treatments of the testicles lasting six hours were performed for this purpose. A complete azoöspemia was established after half a year. In the second case complete sterility was produced for similar reasons by one illumination lasting 100 minutes.

The experiences of physicians who have occupied themselves for a long time with the Röntgen rays without protecting their

genitals, and also the observations made on workers in factories for Röntgen apparatus confirm this fact absolutely.

We were also able to discover the cause of the sterility in several physicians' marriages by an examination of the semen. These cases showed absolute permanent azoöstermia resulting from irradiation with Röntgen rays. Neither libido nor potentia coeundi had suffered in the least in these cases. The statement is generally made that the testicles are reduced about one-half in size.

In one case we could find a temporary necrozoöstermia in a colleague, who had worked only a short time, and with a lead protector for the genitals, with the Röntgen rays.

It was surprising that the lecithin corpuscles were entirely absent in his ejaculated fluid. To what extent this was due to the known selective action of the Röntgen light on lecithin we cannot say.

Any other cause of the azoöstermia, especially double epididymitis, could be excluded in all the cases mentioned. Two of the men indeed had shown their sexual power before marriage and before their occupation with the Röntgen rays by begetting offspring.

(To be Continued)

SPECIAL ABSTRACT

Proof of the Absorption of Spermatzoa in the Female Organism.

By Edmund Waldstein and Rudolf Ekler. *Wiener Klinische Wochenschrift*, XXVI, No. 42 (Oct. 16, 1913).

The anatomical and histological study of the fate of semen introduced into the female body during copulation has given unsatisfactory results. The authors have made a biological study of the problem based on Abderhalden's recent contributions to the diagnosis of pregnancy. Rabbits were used for the experiments. These were allowed to have coitus and then blood was removed from the females in such a manner as to obviate hemolysis (which interferes with the reaction). One and a half cubic centimeters of the blood *serum* were then dialyzed with 0.5 g. of rabbit testis. After 12 to 14 hours in the incubator the dialyzate was subjected to the ninhydrin (a modified biuret) test, the theory being that if the semen was actually absorbed by the female, her blood would contain a ferment capable of splitting the non-dialyzable complex testicular proteids into simpler bodies whose presence would cause a positive ninhydrin reaction.

Control tests showed that there was normally no testis-splitting ferment in the blood of the virgin female and of male rabbits. Having established this point, the authors made 15 tests on the blood of rabbits soon (mostly within 24 hours) after coitus. The results were all positive, and what is more, many of these results were obtained in the same animals which had responded negatively to the first (control) series of experiments. In order to prove the specificity of this reaction for testicle protein, the authors made 8 control tests with other substances: 3 tests with placenta, 4 tests with muscle, one test with kidney. These controls were all negative.

In response to the possible objection that it is not the absorbed semen but the impregnated ovum that causes the elaboration of this specific ferment, the authors point out that in the first place, the interval after coitus is too brief for the ovum to exert any biologic influence upon the mother as it is not yet brought into any actual biologic contact with her tissues, and that in the second place, they have observed numerous positive reactions in rabbits which did not subsequently become pregnant. Nevertheless, a special study was made with the blood of pregnant rabbits with the result that of ten cases investigated, nine were positive. The reactions in these cases, however, were invariably weaker than those obtained immediately post cohabitationem.

The authors are not yet clear as to the exact time relations

* The importance of Waldstein and Ekler's investigations cannot be overestimated, and they deserve to be noticed in a special abstract.—EDITOR.

between the coitus-reaction and the pregnancy-reaction. That is, they have established that the former begins soon after intercourse and ends probably within two weeks in non-pregnant individuals and that the latter lasts more than 4 weeks (i. e., throughout pregnancy and even into the puerperium), but they do not know definitely whether the coitus-reaction goes over directly into the pregnancy-reaction when conception has taken place, or whether there is a reaction-free interval in those cases.

The authors do not believe that the reaction of pregnancy is produced by the same cause as the reaction of coitus, for it is unreasonable to assume the constant absorption of semen throughout the entire four weeks. They would rather postulate the existence of a different ferment, produced by the mother in response to the presence in her body of placenta [basis of the Abderhalden reaction] and fetus (as shown by Polano), which has in common with the anti-semen ferment the property of splitting testicle protein. That these two ferments should have this common faculty is not so remarkable when we recall that placenta and fetus arise in part directly from spermatozoa.

Translating the results of their animal experiments to the human sphere, the authors point out that in demonstrating the existence of a new substance in the body of a woman after intercourse, they have furnished an additional basis for the explanation of those manifest phenomena which we were formerly wont to brand as merely psychic in nature. The medico-legal possibilities of this test as after rape, etc., are, of course, very great.

DEPARTMENT OF SEXUAL PSYCHOLOGY

NOTES ON THE PSYCHOLOGY OF SEX

I

By DOUGLAS C. MCMURTRIG

SEXUAL psychology is a subject to which, in the United States, but scant attention has been given. There are a growing number of scientific men abroad—particularly in Germany, though there is one notable exception in England—who have made studies of great erudition in this field, but their work seems to have interested only the curious in this country. Any efforts at original research have been obstructed by innumerable difficulties. The psychological departments of all our universities but one have entirely neglected the functional reaction of greatest import to the race. Even in forensic and criminological work, in which the pathology of the sexual instinct factors largely, scientific attention has been lacking. There is no doubt that it is prudery alone which has been responsible for this neglect.

That such an influence should operate to forbid the psychology of sex as a topic of general conversation, and that too full a knowledge of the pathological manifestations should be guarded from the youth and the unintelligent public is entirely conceivable. But that scientific men should have shunned it in horror, and that no instruction in the subject should be available in any medical school or department of psychology throughout the country is hardly so defensible.

To be sure there is a growing public interest at the present time in certain sexual manifestations, notably the social evil and venereal disease. As one prominent weekly observes, "Prostitution has become a parlor topic." There is also considerable propagandist agitation looking toward the promotion of conventional morality. But the interest embraces only the sexual act and its consequences. As far as can be observed, there has been no general consideration of the more fundamental principles operating in the causation and determination of the act in question. It is with this vital field that sexual psychology deals. To say that the ignorance regarding this is universal is not to overstate the case.

The community is interested in the coming generation; in the fecundity of the people. Yet we cannot be so dense as to imagine that the fate of offspring is settled by a formal ceremony upon the wedding day. It is emphatically true that when a

young man looks upon a young woman with emotions of love, at that moment a potential third party is brought into being. Every influence affecting sexual development from youth until maturity has a distinct bearing upon the prospective baby which will some day lie in some mother's arms. Are we to disregard these influences; are we to argue that the seed thrives best under the supervision of ignorance? Or are we to study them, and utilize the resulting knowledge to improve the chances of babies yet unborn? In every other field of human knowledge the analogous answers to the last question have been affirmative; with sexual science alone the exact opposite has been the case.

For those who have realized the importance of the influences involved, this extended apologium will not be necessary. But it is unfortunately true that those who have ventured upon studies in the realm of sex, have been looked upon with stigma by many intelligent persons. Only recently the editor of an American medical periodical referred to the work of a distinguished genito-urinary specialist as "that filthiest of specialties." Scientific readers will need no comment on such an attitude.

There is, however, some basis for the criticism of studies in the psychology of sex, in that such great prominence has been given to sexual abnormalities and morbid conditions. But it should be recalled that much of this emphasis was necessitated by the medieval attitude which the community has taken—and, in fact, still takes—regarding certain anomalies of sex. Furthermore the sexual irregularities constitute certain dangers which should be avoided, and to properly combat them their characteristics must be known. But there is a wide field of the psychology of normal sex which well repays study, and to any feature of which there seems no possible objection. With the present subject there are also inalienably associated certain social manifestations of the operation of the sexual instinct. The cause and the effect can most intelligently be jointly considered.

To summarize, therefore, we have to deal with a human instinct, universal and less imperious than that of hunger only. To neglect it is to invite its direst results; our only defensible course is to study it carefully in all its aspects. Far from considering the subject reprehensible, the present writer has always regarded it as dealing with one of the noblest functions of the race. It is his earnest hope that in the future more and more people will come to a similar opinion.

THE PRESENT SERIES

In the present series the effort will be made to follow the progress of sexual science throughout the world. The results of original researches will be presented from time to time, current scientific literature will be abstracted so far as space permits and news items bearing on sexual psychology will be presented. A considerable portion of the department will be devoted to the normal functions of sex, though the pathology cannot be neglected for reasons already indicated. An attempt will also be made to present summaries of the state of knowledge regarding special phases of sexual psychology.

Due to current interest in the so-called social evil and the lack of scientific literature in English regarding it, the subject of prostitution will receive considerable attention.

Finally, it must be remembered that the science with which this department will deal is still in its infancy. Many of the observations and findings presented will not be conclusive. All scientific data must, however, help toward this end.

MATERNITY SUBSIDIES IN FRANCE

According to dispatches from France a bill with the object of checking the declining birth rate, as amended by the Senate, has passed the Chamber of Deputies. Next year, when the act becomes operative needy French parents with more than three children below the age of thirteen may receive from a municipal authority an annual grant varying from twelve to eighteen dollars for each child beyond the specified three. In the case of a widower the grant will apply to children less than thirteen years of age beyond the number of two. A widow may claim the grant for any children in excess of one beyond the same age. It is estimated that there will be entailed an annual expenditure of approximately ten million dollars. This will be shared by the national government, the departments and the municipalities.

TEMPORARY PROSTITUTION IN ALGERIA

In the Ziban, a strange and little known zone of oasis-dotted steppes in the southern part of Algeria, there lives the race of Ouled-Nails. The district is hemmed in between the Atlas Mountains and the Sahara Desert, and forms the real Algerian hinterland, a district wholly different from the rest of the country in people, manners, and customs. The women of the Ouled-Nails are unusually attractive. Powell¹ describes one of them as fol-

¹ E. ALEXANDER POWELL. *The Last Frontier*. New York, 1912, pp. 56-63.

lows: "She was a perilously pretty girl, judged by any standard that you please. She was unveiled—a strange thing for an Eastern woman—and the clearness of her *café-au-lait* complexion was emphasized by carmine lips and by blue-black hair, bewilderingly becoiffed and bewitchingly bejewelled; her eyes Scheherazade would have envied." From their earliest childhood these women are trained for an immoral existence. Leaving home in their early youth they go to Biskra, Constantine, Algiers and even to Tripoli and Tangier, dancing in the native coffee-houses or in the harems of the rich, and earning considerable sums in this way, as well as by prostituting themselves at various times to those who can offer sufficient inducement. The Ouled-Naïl converts her surplus earnings into gold pieces, linking these into a kind of breastplate. When this golden ornament becomes long enough to reach down to her waist, she abjures her promiscuous life, returns to the tents of her people, and, entering on a path of virtue, leads a strictly moral life. She then marries some sheikh or camel-dealer and bears him children. If these be boys they grow up to serve in the armies of France, or if girls, to lead the life of their mother all over again. The profession is therefore an hereditary one, which all the women of the tribe pursue without incurring, according to Powell, any scandal or trace of shame.

Unlike the geishas of Japan, the nautches of India, and the odalisques of Turkey, which are but classes, the Ouled-Naïls are a race distinct in features, languages, and customs. The men among the Ouled-Naïls look upon the lives of the women with complete toleration. A girl who has been for several years a resident in the Rue Sainte, as Biskra's Tenderloin is called, will assume quiet dress, veil herself to the eyes, and return to assume a position of respectability and consideration among her own people.

A CASE OF FEMALE INVERSION

Sexual inversion in women is often easily recognizable simply through social relations. The following case reminds one strongly of Belot's French novel.² An eminent American was married to a woman of considerable ability and very decided and positive characteristics. Due to the sexual constitution of the wife the marriage was not happy though all the details of practical affairs were auspicious. The wife would go off for long periods and live with a woman with whom she was deeply in love. The length and frequency of these visits increased and at the

² A. BELOT. *Mademoiselle Giraud, ma Femme*.

time of my information she had practically ceased to live with her husband and spent all her time with the woman already referred to. This was with the full, though reluctant, consent of the husband who evidently realized the situation, and felt it to be inevitable.

CHARACTERISTICS OF PROSTITUTES

Apropos of prostitution in the city of St. Paul, Minn., Smith³ says: "We have no knowledge of the white slave traffic, but we have the problems of the dance hall, hotel vice, street-walking, and the call girl; and the very grave problem of the protection of the innocent and the moral uplift of the first offender." As causes he mentions economic conditions, lack of a place to go after first misstep, ignorance of consequences, and mental characteristics. Regarding this latter he states as follows: "Prostitution may be the expression of an abnormal mentality. Those offenders who are oversexed, or mentally deficient somewhere, or drift into the life through mental apathy, present a problem for the alienist and should be dealt with accordingly."

NORMAL SEXUAL ALLUREMENT

The factors operating in normal sexual allurement are matters of universal empirical knowledge, but their detailed analysis is seldom attempted. The figure characteristics in the female which are popularly invested with such great erotic significance are considered in detail in a recent article.⁴ It may be of interest to quote from the general conclusions set forth. "Sexual selection works in many ways along a coincident line with natural selection, and this is perhaps nowhere shown to such a striking extent as in standards of attraction in woman. Beauty in woman, certainly in so far as sexual allurement is concerned, depends mostly upon the full development and accentuation of the secondary sexual character. The primary sexual characters are distinctly unesthetic and unattractive, and under normal conditions do not figure largely in sexual orientation. The seeming exceptions to this would be exhibitionism which is distinctly a pathologic manifestation, and phallicism which is essentially the symbolic representation of a principle concerned with the fundamentals of procreation.

³ CHARLES E. SMITH, JR. "Some observations on public health and morality. *St. Paul Medical Journal*, 1912, xiv, 194-202.

⁴ DOUGLAS C. MCMURTRIE. Figure Characteristics in the Female as Factors in Sexual Allurement—The Influence of the Corset. *Lancet-Clinic*, Cincinnati, 1913.

"This being the case our attention is directed chiefly to the secondary characters, those involved in the functions of sex outside of actual intercourse. The first attribute of this type peculiar to woman is pelvic breadth. In the rise of vertebrate evolution from the lower animals the pelvis becomes relatively broader, that of the woman increasing more proportionately than that of the man. We can understand, therefore, how in advanced races pelvic amplitude has become a standard of beauty. But another potent reason for such a standard is the index it furnishes of capacity for fetal development and delivery of children. It may also be pointed out that the pelvis is the seat of the great centers of sexual emotion, and the race or the persons with large pelvises are those best adapted to propagate their kind.

"The breasts form another secondary character of great importance. These are undoubtedly one of the main points of beauty in woman and it will also be noted that they give an index of capacity for nursing offspring, one of the principal female sexual functions. They are also a large point in the differentiation of woman from man, as they are always a good deal larger, relatively considered.

"As regards figure characteristics: I am aware that the lower limbs of women are generally regarded as having peculiar sexual allurements. After careful consideration I am inclined to believe that the emphasis directed to these members is largely artificial and the result of pruriency which has been, to a degree, developed by the use of clothing and consequent standards of modesty. In an unclothed state we can hardly imagine much erotic emphasis being directed to a woman's ankle or lower legs. Under present conditions with the exposure of more and more of a woman's leg from the ankle upward, there is the prurient implication of the ultimate extremity, but such ideas must be regarded as obscene rather than physiologic and so dismissed from the present inquiry. The esthetic grace of a beautifully proportioned member, delicate in its parts, must always have a legitimate charm, but under present conditions of everyday life has little significance.

"In recurring therefore to the principal figure characteristics operating in sexual selection or allurements, the pelvis and the breasts, attention may be called to the fact that both are indications of sexual health and vitality.

"One of the physiologic aims of woman is sexual orientation and the allurements of members of the opposite sex. It is only natural, therefore, that, as the two named secondary sexual char-

acters are two of the main points of feminine beauty, women should endeavor to accentuate them still further. I will make the preliminary statement that the principal means of such accentuation are stays or corsets, and would point to their universal and persistent use as confirmation of the psychologic soundness of the theory here set forth.

"The corset operates as follows: It constricts the waist, though this is not its primary purpose, and it displaces some flesh upwards to the region of the breasts. The breast measurement of women laced in corsets is very considerably greater than when uncorseted. By this latter enlargement and in comparison with the attenuation of the waist, the breasts and hips seem much larger and so the end is attained. I would emphasize the fact that the custom is due to no passing fashion, but has its roots deep in the instincts of the race.

"One thing else is accomplished by the corset. It has tended to make the breathing costal rather than diaphragmatic or abdominal in character. This was true to such an extent that up till recent investigations costal breathing was considered an organic attribute of woman, whereas it is in fact only an artificial variation due to mode of dress. Smith, Sewall, Ellis, Kellogg and others have amply demonstrated this. This displacement of breathing activity upwards causes respiration to motivate the breasts and thus draw attention to this sexual character."

The article also gives a digest of the literature bearing upon the subject and cites full bibliographic references.

ANTHROPOLOGY OF THE PROSTITUTE

In dealing with prostitutes an important question to ascertain is whether *puellae publicae* have certain anthropologic characteristics which predispose them to their calling. It is unfortunate that but few efforts at such determination have been made. Lombroso brought forward certain contentions, Tarnowsky studied a large number of prostitutes and recently de Quiros has made careful observations in Madrid. We have also learned from several studies in heredity, that in some defective or degenerate stocks, where the male offspring have been criminal, the co-ordinate females have been prostitutes.

It is most encouraging to learn that a systematic effort to throw light on this subject is now being made at the New York State Reformatory for women at Bedford Hills, N. Y. At this institution are assembled approximately six hundred women between the ages of sixteen and thirty, a large proportion of whom

have been committed as prostitutes. The tests so far applied in the endeavor to study these women have been largely psychologic tests of mental capacity. It is to be hoped that later on a systematic effort will be made to determine the sexual characteristics of the women under consideration. This might lead to most valuable findings in a new field of psychology.

The work now being done at Bedford, however, is most earnest, careful, and deliberate and we may eventually expect from it most useful results.

MARITAL FIDELITY IN CHINA

Due to the conception of family life in China, it is esteemed of the highest importance to have children, and as pointed out by Hartland⁷ it is somewhat of an infamy to be destitute of them. There are husbands, at least in the province of Fo-Kien and doubtless elsewhere, who for this purpose force their wives to entertain other men and invite or even force some friend to have intercourse with them.⁸

In an historical light, customs in certain Chinese provinces as recorded by Marco Polo⁹ and mentioned by Hartland¹⁰ are of considerable interest. In Poim where the people are Moham-medans, when the husband left home on a journey for twenty days, the wife at once found another man with whom she lived until her husband returned. In Camul if a stranger came the master of the house went away, charging his wife to be complaisant in all things to their guest. The Great Khan tried to abolish this custom but the people were too much attached to it. They sent ambassadors representing that it was the custom of their fathers, that it was pleasing to their idols, and that they wished to adhere to it. The result was that the Great Khan had to accede to their wishes. In Chelet men would not marry virgins. Mothers used to offer their daughters to strangers, who kept them as long as they pleased and then sent them away with a gift or token. This token was worn around the neck; and the more of such tokens a girl had, the sooner she was married and the more her husband thought of her. In Caidu the same custom was followed as that attributed to Camul. In the city of Lazi it was a matter of indifference to the men if other men had relations with their wives.

⁷ EDWIN SIDNEY HARTLAND. *Primitive Paternity*. London, 1909, Vol. 1, p. 311.

⁸ FATHER JAIME MASIP, *Anthropos*, Vol. 2, 716.

⁹ MARCO POLO, cc 41, 45, 85, 86, 87.

¹⁰ EDWIN SIDNEY HARTLAND, *op. cit.*

REVIEW OF CURRENT UROLOGIC LITERATURE

ZEITSCHRIFT FÜR UROLOGIE

Vol. VII, No. 9, 1913.

1. Vaccine Therapy of Infections of the Urinary Tract. By Ove Wulff. P. 705.
2. Intravesical Treatment of Papillomata of the Bladder by Electrolysis. By Rudolf Oppenheimer. P. 728.
3. Historical Contributions to Urology. By Paul Richter. P. 735.

1. Vaccine Therapy of Infections of the Urinary Tract.

Wulff has treated 63 cases, 14 males and 49 females, with autogenous vaccines. He divides his cases into 5 groups. The first group contained 23 cases who suffered from acute, usually repeated attacks, of lumbar pain, fever and chills, and pyuria. Twenty-one of these cases were improved or cured by this treatment. The next class included 19 cases of a chronic non-febrile nature, in which pyuria was a constant symptom. All but one of these showed cure or improvement. The third group consisted of eleven cases of kidney infection accompanying kidney stones. Despite the fact that the stones were removed in every case, five patients were unimproved by vaccination. Of the 6 cases in the fourth group, 5 had movable kidneys, one was a case of perinephric adhesions. Only half of these cases showed improvement under treatment. The sixth and last group was composed of 4 cystitis cases, all but one of these showing improvement under vaccine treatment.

Before treatment, albuminuria, pyuria and bacteriuria were present in 76%, 100% and 100% of the cases, respectively. After treatment they were present in 28%, 41% and 71% of the cases, respectively.

The author has not been able to obtain information of practical value from a study of the opsonic index in this series of observations.

2. Intravesical Treatment of Papillomata of the Bladder by Electrolysis.

Oppenheimer uses the street current, the force of which is reduced by a pantostat to a voltage of 60. He employs intravesically a current of 25 to 45 milliamperes strength according to the tolerance of the patient. The anode is placed on the abdomen or thigh of the subject. The cathode, which is provided with a metal tip up to 0.5 cm. in length is used intravesically as the actual cauterizing instrument. The instrument comes in sizes varying from 6 to 10 of the Charriere scale. Before introduction, the urethra is novocainized and the bladder filled with a 1:4000 mercury oxycyanide solution. By the author's procedure papillomata may be readily removed with the following advantages: (1) The technic is simpler than the use of snares and forceps. (2) The bougie electrode employed can fit into a ureteral cystoscope of small size. (3) Hemorrhage is usually very slight.

(4) The procedure is almost painless. (5) The danger of perforating the bladder is small. (6) After removal of the tumor, the bladder wall which was the seat of the growth can be readily further cauterized.

The electrolytic method has the disadvantage that the gas bubbles which result from the physico-chemical changes involved in the process often obscure the cystoscopic field to a considerable extent. Moreover the number of sittings necessary for the complete removal of a tumor is often large—in one case as many as 19 treatments were needed.

3. Historical Contributions to Urology.

Richter contributes two notes of historical interest to this issue. In his first study he shows that "hematuria egyptica" existed in all probability in Babylonia and Assyria as well as in Egypt. Bilharzia eggs cannot be demonstrated in the remains of the ancient inhabitants of these lands as the bodies were not embalmed, but were buried in clay or stone coffins. However, there exist in many museums certain boundary-stones, which were erected originally for the purpose of separating adjacent fields, etc., and bearing inscriptions in cuneiform writing. These inscriptions end up almost invariably with a curse directed against anyone who should dare to remove the landmark. On one stone in the Louvre, Paris, the curse reads: "May Gula, the great goddess, wife of Ninip, pour an unquenchable poison into his entrails so that he may urinate blood and pus instead of urine." Richter points out that this threat refers to a common disease causing hematuria, which can be none other than bilharziasis. It may be of interest to add that similar inscriptions occur on stones shaped like a circumcised penis, which have been unearthed recently in Nippur, Telloh and Assur (Nineveh).

The author's second contribution deals with the Arzberger apparatus for cooling the rectum in the treatment of hemorrhoids. Arzberger's name was so often misspelt by writers that Richter decided to find out exactly who this inventor was; but as the latter was a layman his name did not appear in any of the medical directories consulted. As a result of Richter's researches we learn that the originator of the "rectal olive" was Friedrich Arzberger, born 1833, died 1905. He was a professor in several technical schools and a government commissioner. His apparatus was presented by one Dumreicher before the medical profession of Vienna in 1867.

ZEITSCHRIFT FÜR UROLOGIE

Volume VII, No. 10, 1913.

1. Urology as a Science and Branch of Instruction. By L. Casper. P. 786.
2. The Formation of Urinary Stones. By C. Posner. See Special Abstract, December issue.
3. The Formation of Urinary Gravel and Stones. By L. Lichtwitz. See Special Abstract, December issue.

4. The Value of the Balsamica, especially the newer kinds, in the Treatment of Gonorrhea. By Max Roth and Theodor Mayer. P. 821.

4. The Value of Balsamics in the Treatment of Gonorrhea.

The authors have made a comparative study of such balsamics as Oleum Santali, Kawasantal, Gonosan, Thyresol, Santyl, Arhovin, Kamphosan and Allosan, in the treatment of gonorrhea, and conclude as follows:

1. The balsamics have no effect on anterior urethritis. They are not bactericidal for gonococci. Even Arhovin forms no exception to this rule.

2. The secondary (untoward) effects of ol. santali are exaggerated; they occur in about 15% of the cases. They occur just as often with Gonosan and almost as frequently with Arhovin and Thyresol. On the other hand they are much less frequent with Santyl, Kamphosan, and Allosan.

3. The balsamics cannot prevent complications.

4. Erections and pollutions are not influenced by balsamics.

5. Strangury is relieved by the balsamics. In this effect Santyl, Kamphosan and Gonosan are all about as useful as santal oil. The others are much less powerful.

6. The objective control of the course of the disease, as measured by the time required for the clearing up of the urine, is best accomplished by santal oil. Santyl, Kamphosan, and Gonosan are the next most useful in order named.

7. As seen from the above, oleum santali is the most generally useful balsamic,

8. A substitute for santal oil is required only in cases where untoward effects are marked. In such instances Santyl and Kamphosan are the best drugs to use.

9. No balsamic has any permanent influence on posterior urethritis.

FOLIA UROLOGICA

Vol. VII, No. 11.

1. Endovesical and Endourethral Treatment with the High Frequency Current. By Robert Bachrach. P. 685.
2. Gonorrheal Urethro-cystitis. Right Uropyonephrosis, Nephrostomy. Left Pyonephrosis, Posterior Pyelotomy, Late Secondary Nephrectomy, Recovery. By Dr. Boulanger. P. 693.
3. Hematogenous Tuberculosis of the Vas Deferens: A Clinical and Histological Study. By Giacomo Zaccarini. P. 703.
1. Endovesical and Endourethral Treatment with the High Frequency Current.

Bachrach bears testimony to the usefulness of Beer's high frequency treatment of benign papillomata of the bladder. He has

treated twenty cases in this manner, three cases being metastases implanted on the dome of the bladder following a *sectio alta* for papilloma. There has been no recurrence for over a year following the removal of these growths with the high frequency current. The endovesical procedure, however, should not be used for very extensive papillomas, or in the case of carcinomas.

This method of treatment is likewise of great value in the endourethral therapy of affections of the *colliculus seminalis* and of other affections of the urethra, especially when assisted by suitable urethroscopic instruments.

2. Gonorrheal Urethro-Cystitis, etc.

Boulanger draws the following conclusions from his case:

1. Any kidney lesion (such as calculus for example) may serve as a source of infection for that organ.

2. Ablation should never be performed before functional tests have been made. In the case described the nephrectomized (right) kidney proved to be functionally superior to its fellow.

3. If radiographic examination had been made the presence of calculi in the left kidney would have been revealed. For this reason every patient who suffers with persistent pain in one kidney should be radiographed even if other signs of stone are wanting.

4. Decapsulization is permissible only when nephrectomy has been decided upon, as a decapsulated kidney cannot be sewed together again.

5. Since pyelotomy, with or without suturing, does not cause a fistula, that which persisted in the present case was undoubtedly caused by the presence of calculi imbedded in the renal parenchyma.

6. When the renal pedicle cannot be ligated permanent clamps furnish a satisfactory method of hemostasis.

7. Secondary nephrectomy, although much more difficult than a primary operation, is nevertheless not a very dangerous procedure.

8. A careful study of the relative urea output of the two kidneys will readily demonstrate the functional inferiority of one of them, and indicate its removal.

3. Hematogenous Tuberculosis of the Vas Deferens.

The author describes a case of primary tuberculosis of the vas deferens. A caseous deferentitis developed which worked out to the tunica and finally perforated.

From its origin within the lumen of the vas the process spread in three ways. First, by extension (direct) to the lymphatics and blood spaces surrounding the vas. Second, by diffusion along the course of the spermatic current toward the seminal vesicle. Third, in the opposite direction, viz., toward the testicle, but in this case the process was limited in extent, the vas being quite normal in the region of the epididymis.

It follows; therefore, that extension of the process toward the testicle was obstructed by the seminal current whereas its extension with the current was easy. In such a case where neither experimentation nor clinical observation can decide the origin of the infection, it is left for a histologic examination to point out its hematogenous nature and to confirm the theories of Baumgarten in this connection.

FOLIA UROLOGICA

Vol. VIII, No. 1.

1. A Case of Bilharziosis in Upsala. By Prof. G. Ekehorn. P. 1.
2. Contribution to the Study of Chronic Painful Unilateral Nephritis. By Domenico Taddei. P. 12.
3. Supernumerary Kidneys. (Casuistry; Report of a Case, Diagnosed before Operation, with Cystic Dilatation of the Vesical End of the Ureter.) By F. Suter. P. 35.
4. The Anatomy of Prostatic Hypertrophy (To be continued). By Prof. Josef Englisch.
1. A Case of Bilharziosis in Upsala.

The author describes a case imported from South Africa. The disease was characterized by hematuria. At first the urine was bloody only at the end of micturition; later, the hematuria became, for the most part, complete. The patient complained of some pain in the urethra at the end of micturition, but this was only true at the onset of the condition, for as the disease developed—it lasted 6 years—micturition became normal again.

The patient's condition was not improved by his residence in Sweden (4 years). During the last year of his illness he suffered a distinct aggravation in that the urine became much more bloody. The bilharziosis had caused retention of urine in the ureters and pelvis with secondary dilatation of these structures on both sides. Finally, there supervened an infectious pyelonephritis with septicemia and the patient died in four days. The bladder wall was found to harbour considerable masses of bilharzia eggs.

The cystoscopic picture could be regarded as characteristic of bilharziosis. The bas-fond of the bladder was of a pale gray, uniformly bright without vascular arborization. The surface of the mucosa was studded with small excrescences or villosities, like fine, stiff hairs, so that one might say that the whole surface bristled with a hairy coat. At the end of these fringes, one could make out, here and there, a bright streak, due in all probability to encysted ova. These fringes cannot be compared to real papillomatous growths as they are due simply to a very fine laceration of the vesical mucosa.

2. Contribution to the Study of Chronic Painful Unilateral Nephritis.

The author presents a thorough clinical, pathological and histological study of a case of chronic painful unilateral nephritis, ac-

accompanied by what were probably uremic manifestations, viz.: motor aphasia, diarrhea, etc. The patient was cured by nephrectomy. The lesions in the diseased kidney consisted of a diffuse, cloudy and fatty degeneration, and of sclerosis of the glomeruli with small zones of mononuclear infiltration.

As to the etiology of the condition, the author excludes the possibility of a gonorrheal or intestinal infection and favours a tuberculous basis (positive history, positive cutaneous reaction, presence—on one examination—of acid-fast bacilli in the urine, evening fever). Although no giant cells or tubercle bacilli were demonstrable in stained sections (epithelioid celled foci were found however) the author does not admit the possibility of a non-specific tuberculosis.

The author next takes up the classification of painful nephritides, the various clinical phenomena, probably of a uremic nature, and the importance of cold in the production of acute symptoms. He advocates nephrectomy as the treatment of all forms of nephritis demonstrably unilateral and cites published cases of painful nephritis unsatisfactorily treated by nephrotomy or decapsulation.

3. Supernumerary Kidneys.

The author gives statistics of 19 cases of supernumerary kidneys and reports two personal cases. In one case the vesical end of the ureter of the supplementary kidney presented a cystic dilatation. The diagnosis of the supplementary kidney was made before operation.

In these cases the ureter of the upper kidney opens into the bladder to the median side of and below the ureter of the lower kidney (i. e., nearer the urethral orifice). Accessory kidneys are equally frequent in the two sexes. The accessory kidney is just as likely to occur below as above the normal kidney. Accessory kidneys placed above the normal kidney are more likely to be hydronephrotic.

There is no typical symptomatology for supplementary kidneys. In only 3 cases was the diagnosis made before operation.

MISCELLANEOUS ABSTRACTS

Salvarsan Relapse.

DR. M. L. HEIDINGSFELD (*J. A. M. A.*, November 1), says that the attempt to establish fixed rules for the treatment of syphilis is very difficult but there are a few fundamental principles generally accepted. The intravenous administration of salvarsan is conceded to be the most efficient method of its administration. With proper technical precautions it can be performed in ambulatory practice but painstaking surgical asepsis is essential. In his early use of the drug he was inclined to give large doses frequently repeated but experience has made him more conservative. He insists on the value of the Wassermann test as essential in the treatment of syphilis as even salvarsan. Of his 651 cases 23 per cent. failed to produce a negative reaction with salvarsan and when aided by other measures in about 12 per cent. He does not mean that they were absolute failures. From an objective clinical point of view they were free from visible manifestations but the persistent strong Wassermann reaction showed that they were uncured.

For the past year or more he has been using various methods as adjuncts to the salvarsan treatment. In the beginning he employed massive intravenous administration of mercury oxycyanid and mercury bichlorid but gastro-intestinal disturbances caused him to abandon these drugs. Since then he has employed a 10 per cent. solution of sodium cacodylate and atoxyl with better results, the former proving the most reliable and efficient. Some cases were not favourably influenced, however. The injections were made twice weekly for thirty to sixty days and if the Wassermann was negative in thirty days they were given once weekly, but for never more than a total of sixty days. They were always well tolerated. Only five cases in his experience have relapsed to a Wassermann positive after a negative one for one full year. Salvarsan is not unfailing. It effects an apparent clinical and laboratory cure in about 77 per cent. and the remainder give every promise in the majority of cases of an ultimate clinical cure with the aid of sodium cacodylate and other measures.

Hexamethylenamin.

The results of a study of the effects of hexamethylenamin internally administered are reported by Frank Hinman, Baltimore (*J. A. M. A.*). His conclusions are given as follows: "1. The conversion of hexamethylenamin into formaldehyd is a simple chemical process which will readily occur in an acid medium, but will not occur in an alkaline medium. 2. The amount of excretion of hexamethylenamin in the urine is influenced by the size of the dose, by the frequency of administration and by the character of the changes that occur in the acid contents of the stomach. 3. The amount of the subsequent con-

version of this hexamethylenamin in the urine is dependent on the degree of urinary acidity, on the duration of exposure to the influence of this acidity and on the percentage concentration of the drug in it; and in order to give formaldehyd conversion in antiseptic amounts the urinary acidity should be greater than 2 c.c. of tenth-normal sodium hydroxid for 10 c.c. of urine. 4. A low acidity may be temporarily increased by feeding certain acid-producing drugs, and this increase in acidity may often be maintained by giving these drugs alternately. 5. Disease of the kidney has no influence whatsoever on the formaldehyd content in the urine. 6. At the level of the kidneys hexamethylenamin in doses of 15 grains three times a day has no antiseptic value. 7. Formaldehyd is present in the bladder urine in some amount in practically every case receiving 15 grains of hexamethylenamin by mouth three times a day, but this dosage is too small a routine from which to expect a reasonable antiseptic benefit in every case. 8. The allied hexamethylenamin compounds do not give greater antiseptic values than pure hexamethylenamin."

Pseudodiphtheria Organisms in the Urinary Tract.

A case resembling tuberculous cystitis, but which showed the pseudodiphtheria bacillus in pure culture, is reported by W. W. Townsend, Rutland, Vt. (*J. A. M. A.*). He also reproduces a case reported by Rosenow and reviews a number of authorities in regard to this organism. As a result of his observations he is convinced that under proper conditions a pseudodiphtheria bacillus in the genito-urinary tract can become pathogenic and is more common as an etiologic factor than has been appreciated. His findings support Brown's statement that it is not at all uncommon as a sequence of gonorrhea to find a bacteriorrhea with a large number of organisms of different types in the urine. Without claiming that the pseudodiphtheria bacillus is always pathogenic unless overridden and controlled by the staphylococcus, he believes that the subject of symbiosis is one for further study by bacteriologists and of vast clinical interest in the treatment of various conditions in the genito-urinary tract.

The Influence of Fasting on the Structure and Functional Activity of the Dog's Testis.

E. POIARKOV (*Compt. rend. Soc. de Biol.*, lxxiv, No. 3, January 24th, 1913) subjected two male dogs to a partial fast for a period of about three months; they received daily about a quarter of a Russian pound of oats in meat-bouillon. Their body weight fell in each instance about one-third. At the end of their fast they were put on a substantial diet, and in two months' time regained their normal weight. During the fast the volume of their seminal emissions fell from 10 c.cm. to 1 or 2 drops; with recovery of weight the quantity of semen became gradually re-established, but more slowly than the

gain in body weight. During the fast the number of spermatozoa fell considerably. Before the fast the spermatozoa showed movements which persisted for two or three days; at its beginning their vitality was but little altered, but when inanition was complete they showed little or no movement. The tail of the spermatozoon was twisted, instead of being straight, then it failed to develop. Some spermatozoa showed only a head with a protoplasmic fragment or a head surrounded by a ring of protoplasm; some showed two heads. These changes in the spermatozoa persisted for a long time after cessation of the fast. Even now one of the dogs shows poor vitality of his spermatozoa; thus they cease to move at the end of eight or ten hours. During the period of inanition a testis of one of the dogs was removed; it showed in numerous places nothing but the cells of Sertoli, in others plenty of spermatocytes; very few spermatogonia were present, and of these many showed evident signs of degeneration. Poiarkov hopes to continue his researches on this subject.

A New Culture Medium for the Gonococcus.

SABOURAUD AND NOIRÉ (*Annales de dermat. et syph.*, vol. iv, No. 7, July, 1918), sensible of the difficulties of obtaining and sterilizing the commonly used ascitic fluid at a moment's notice, have devised the following medium, which in their hands has been yielding excellent results in a twenty-four hours' incubation: (1) A litre of fresh milk is boiled for five minutes; (2) the casein is then precipitated with 2 c.cm. of hydrochloric acid, and the serum recovered by simple passage through a piece of linen; (3) the filtrate is added to half its quantity of water and the mixture neutralized with 10 per cent. soda solution; (4) it is then autoclaved at 120° for ten minutes; (5) the following are then added in the strength indicated: Peptone 1 in 100, glucose 1 in 100, urea 0.3 in 100, agar 1.6 in 100; (6) filtration through filter paper and division into separate test-tubes, which are sterilized for ten minutes at 110° C., completes the preparation.

BOOK REVIEW

SYPHILIS AND THE NERVOUS SYSTEM. For Practitioners, Neurologists and Syphilologists. By Dr. Max Nonne, Chief of the Nervous Department in the General Hospital, Hamburg, Eppendorf. Authorized translation from the second revised and enlarged German edition, by Charles R. Ball, B.A., M.D., pp. 406, 98 illustrations in text. J. B. Lippincott Co., Philadelphia, \$4.00.

This work is both theoretically exhaustive and packed with case reports from the extensive clinical experience of an authority. The author is an authority of international reputation and the book is an important one presenting some really valuable original researches. Dr. Ball deserves the thanks of the profession for having made it accessible to the English-speaking public.

STERILITY IN THE MALE AND FEMALE AND ITS TREATMENT. By Max Hühner, M.D., New York, Chief of Genito-Urinary Department, Harlem Hospital Dispensary. Rebman Co., New York. Pp. 262, \$2.00.

This book is a real addition to our knowledge of the subject, presenting the results of many experiments in regard to the behaviour of spermatozoa within the female genital tract, a field in which very little original work has been done hitherto. We look forward to some more work in this line from the diligent and painstaking author.

GENITO-URINARY DIAGNOSIS AND THERAPY. By Dr. Ernst Portner, Berlin, Translated by Bransford Lewis, M.D., Professor of Genito-Urinary Surgery, Medical Department of St. Louis University, etc. C. V. Mosby Co., St. Louis. Pp. 221, illustrated.

This is a very useful book for the general practitioner who is treating genito-urinary diseases. He will find here many a useful hint, many a valuable suggestion or formula. The genito-urinary specialist, however, will find here little of interest. The additions and note made by Dr. Lewis render the book considerably more valuable in the English translation than it is in the German original.

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OBSERVATIONS ON ACUTE HAEMIC INFECTIONS OF THE KIDNEY ¹

By GEORGE EMERSON BREWER, M.D., New York

IN response to the kind invitation of your chairman to prepare, in conjunction with our colleague, Professor Rovsing, an opening address upon the subject of haemic infections of the kidney, I will present for your consideration and discussion a brief summary of some personal studies on the pathology and clinical manifestations of this most important and interesting type of renal infection.

As the subject is a broad one, as the time at our disposal is limited, and as my experimental work along these lines has been largely devoted to a study of the acute septic conditions, I shall not enter upon a discussion of the chronic types of the disease, or attempt to describe the degenerative renal changes due to toxic conditions; but will limit myself to the discussion of those acute septic lesions for the treatment of which purely surgical measures are indicated.

The subject is one which has interested me for several years, and at infrequent intervals, and in rather a desultory manner I have followed out some experimental work, which at times has served only to confirm the work of others, and at other times has furnished rational explanation for certain clinical phenomena observed in both the ascending and haemic types of the infection.

I feel that I must ask the indulgence of my audience if in presenting the subject I quote largely from two previous communications: one dealing with the clinical aspects of the subject, which was presented in Paris at a meeting of the L'Association Française de Chirurgie in October 1910, and the other read before the Surgical Section of the American Medical Association

¹ Read before the Urology Section of the XVIIth International Congress of Medicine.

in June 1911, which dealt with the etiology and pathology of these infections.

It is generally conceded that infection may reach the kidney by four different routes: (1) by a direct penetrating wound; (2) by extension from a neighbouring focus; (3) by an ascending process from the lower urinary passages; and (4) by the blood current.

Infection by the first two methods is extremely rare, that by the last two so frequent as to constitute the starting-point of the great majority of all suppurative lesions in these organs.

Regarding the comparative frequency and importance of these last two methods of infection there has always been considerable difference of opinion.

Long before the days of kidney surgery the occurrence of renal suppuration was frequently observed; and the classical lesions, as pycelonephritis, pyonephrosis, renal abscess, and perinephritis, described pathologically and occasionally recognized clinically.

As the result of the frequent association of these lesions with cystitis, and a dilated and inflamed ureter, and the clinical history of many cases in which the symptoms and signs of cystitis preceded by a considerable period the fatal outcome, the opinion prevailed that the kidney infection was almost invariably due to an extension upward of the inflammation from the bladder by continuity of tissue. As this was at a period before the germ theory of infectious disease had been evolved, cases of renal suppuration without inflammatory lesions of the lower urinary tract were generally attributed to exposure to cold, trauma, or the mysterious influences of rheumatism or gout.

After the relationship between bacteria and disease had been firmly established, however, the belief in these etiologic factors was generally abandoned; and the immense impetus to pathologic investigation, histologic and bacteriologic research which followed led to a careful experimental study into the nature of these conditions, which soon demonstrated that a large group of renal infections existed which could not appropriately be classified as ascending.

It is to Albarran and to Pernice and Scagliosi, however, that we are chiefly indebted for demonstrating that this group of infections has its origin in the lodgement in the renal parenchyma of micro-organisms conveyed to it directly by the blood-current.

Further investigations by a large number of observers not only confirmed this view but furnished excellent reasons for believing that these haemic infections of the kidney were as frequent, as serious, and in every way as important, as the ascending variety.

That this view is steadily gaining ground, and that the importance of this type of renal infection is being generally recognized, is evidenced by the fact that this International Assembly of Genito-Urinary Surgeons has elected to devote an entire session to its consideration.

The importance of the subject being adequately recognized, let us therefore consider (1) what is the nature of the pathologic processes in these haemic infections of the kidney, (2) what are the clinical types of disease produced by them, and (3) what treatment is to be recommended in each.

PATHOLOGY

The frequent association in autopsy findings of renal suppuration with cases of pyaemia, septicemia, erysipelas, endocarditis, and other fatal septic conditions, had been observed by pathologists for many years before its significance was appreciated.

It was perhaps Lannelongue who, after observing this association in seven out of ten cases of osteomyelitis, first emphasized the importance of renal infection through the blood-current, independent of the fatal general blood infections.

In 1889 Albarran, and later Pernice and Scagliosi, demonstrated that moderate quantities of pathogenic organisms could, under certain circumstances, circulate in the blood without necessarily producing gross lesions, and might eventually be excreted through the kidneys without or with but slight structural changes in these organs. Under other conditions lesions were produced which would vary from a slight cloudy swelling or glomerular nephritis to complete destruction of the renal tissue by purulent infiltration or necrosis.

Israel, in 1891, called attention to the possibility of grave renal suppuration being due to micro-organisms entering the blood-current from comparatively mild local infections as furuncles, paronychias, carbuncles, &c., and Jordan, some years later, reported twelve cases in which the original source of infection was definitely traced to such insignificant peripheral lesions.

Later clinicians, notably Israel, Semon, and Alexander John-

son, called attention to the significant fact that in these blood infections the disease was often unilateral, and that even the gravest suppurative lesions could be successfully attacked surgically so long as the opposite kidney remained functionally competent. This fact was subsequently demonstrated to be correct by the more general employment of cystoscopy and ureteral catheterization.

The following report of my first series of experiments is quoted from my original communication, and while it does not include all of the experiments, it comprises all which exhibited definite lesions, and in which microscopic examinations were made. As will be seen from the protocols, an effort was made in each experiment to produce a unilateral lesion by lowering the resistance of one kidney, either by trauma, the introduction of a foreign body, or the production of an artificial hydronephrosis.

Experiment 1. Small black rabbit. Ether. Right kidney exposed by lumbar incision, delivered, and bruised with fingers. Wound united with silk and sealed with a cotton and collodion dressing. Two cubic centimeters of a streptococcus culture injected into ear vein. Control animal injected with same amount, but without injury to the kidney. Neither animal seemed to suffer from the experiment. Both killed on the fourteenth day. No gross lesion found on autopsy. On microscopic examination of the four kidneys, only hyperemia and slight degeneration revealed, most marked in injured organ.

Experiment 2. Large white and brown rabbit. Ether. Right kidney exposed and bruised, as in Experiment 1. Two cubic centimetres colon culture solution injected into ear vein. Control animal injected without injury to the kidney. Death of both animals in twelve hours from acute toxemia. At autopsy no gross lesions found. Microscopic examination negative as to surgical lesions.

Experiment 3. White rabbit. Ether. Right kidney exposed and bruised. One cubic centimetre virulent typhoid culture (from a fatal case of typhoid septicemia) injected into ear vein. Control animal injected without injury to kidney. Death of injured animal on fifth day from general sepsis. Autopsy: abscesses in lower pole of injured kidney, which had broken through and given rise to a perinephritic suppuration. In opposite kidney a single hemorrhagic infarct. Well-marked peritonitis present (culture negative) and other evidences of acute septicemia. Control

animal killed; no gross lesions present. On microscopic examination of injured kidney, multiple bacterial emboli seen in vessels, especially of glomeruli; surrounding these, more or less extensive areas of necrosis and inflammation. Entire kidney markedly hyperemic. Mild parenchymatous degeneration. In opposite kidney, a single large wedge-shaped hemorrhagic infarct extending to the surface of the kidney. Infarct area necrotic, presenting numerous bacterial emboli; separated from neighbouring healthy kidney tissue by thick wall of leucocytes.

Experiment 4. Brown rabbit. Ether. Right kidney exposed and bruised. One-half cubic centimetre same colon solution as in Experiment 3 injected into ear vein. Control rabbit injected without injury to kidney. Death of injured rabbit on seventh day. At autopsy lesion of injured kidney revealed. Opposite kidney apparently normal. Control animal killed. No lesions. On microscopic examination of injured kidney, single sharply circumscribed abscess in cortex found, midway between pelvis and external border. In opposite kidney, slight hyperemia of glomeruli.

Experiment 5. Grey and white rabbit. Ether. Right kidney exposed and bruised. Two cubic centimetres streptococcus solution injected into ear vein. Control animal injected without injury. Death of injured rabbit on sixth day of sepsis. Autopsy: ulcerative endocarditis found, and other viscera congested. Right kidney surrounded by hematoma and mass of fibrin. Hemorrhagic and necrotic area in lower pole. Parenchymatous degeneration. Opposite kidney showed only cloudy swelling. Control animal killed. No lesions.

Experiment 6. Black rabbit. Ether. Left kidney injured by blow on lumbar region. Two cubic centimetres of staphylococcus pyogenes aureus injected into ear vein. Animal killed at the end of sixteen days. Autopsy showed large septic infarct. Right kidney apparently normal. Microscopic examination of injured kidney: in addition to infarct, the cortex was studded with a number of small abscesses about four times the size of a glomerulus. Well-marked round-cell infiltration in stroma surrounding abscesses. Slight cloudy swelling. Right kidney, only slight cloudy swelling.

Experiment 7. White rabbit. Ether. Left kidney injured by external blow. Two cubic centimetres of typhoid in ear vein. No evidence of gross illness. Animal killed on sixteenth day.

Injured kidney presented subcapsular hemorrhage. Large hemorrhagic infarct, with abscesses at base. On microscopic examination, extravasation of blood found beneath capsule of left kidney. Large wedge-shaped area of necrotic parenchyma, containing several bacterial masses. Moderate leucocytic infiltration. Right kidney normal.

Experiment 8. Large white rabbit. Ether. Left kidney injured by external blow. Two and a half cubic centimetres pyocyanus solution injected into ear vein. Death of animal in twenty-four hours. Left kidney deep red colour, surrounded by blood clot. Right kidney apparently normal.

On microscopic examination of injured kidney, acute exudative nephritis found, with extensive destruction of convoluted tubules. Glomerular tufts compressed by albuminous exudate within capsule of Bowman. Extensive blood extravasation throughout parenchyma. Opposite kidney hyperaemic with parenchymatous degeneration.

Experiment 9. Large white bull-terrier. Ether. Right kidney exposed by lumbar incision. Pelvis of kidney injected with a pasty mass of bismuth subnitrate mixed with glycerine and water. One and a half cubic centimetres colon solution injected into ear vein. Animal becoming markedly ill, was killed on seventh day. Autopsy showing right kidney adherent to liver, colon, and omentum by inflammatory exudate. Capsule very much thickened. On removal of capsule, two large triangular infarcts and several embolic foci seen on surface. Left kidney normal in appearance. On microscopic examination of right kidney, large triangular areas of intense hyperemia seen with extensive purulent infiltration. Necrosis of tubular epithelium.

Experiment 10. Large brown mongrel dog. Ether. Right kidney exposed. Ureter ligated. Bismuth mixture injected into parenchyma. One cubic centimetre colon solution injected into ear vein, animal showing marked evidence of illness at the end of twenty-four hours. Killed on seventh day. At autopsy right kidney found to be surrounded by perinephritic abscess. Capsule greatly thickened. On removal, surface of the kidney seemed to be studded with innumerable embolic foci. Left kidney normal in appearance.

Heart, lungs, liver, spleen, pericardium, and peritoneum normal. Microscopic examination of right kidney, profuse purulent and fibrinous exudate on capsule. Beneath capsule, numerous

bacterial emboli surrounded by necrotic areas, which are infiltrated with masses of pus-cells forming multiple abscesses. Left kidney hyperemic. Moderate cloudy swelling.

Experiment 11. Large brown rabbit. Ether. Right kidney bruised by blow on parietes. One cubic centimetre pyocyanus injected into ear vein. Death in twenty-four hours. No pus lesions found at autopsy. Microscopically, in both kidneys extensive hyperemia and parenchymatous degeneration.

Experiment 12. Large black and white rabbit. Ether. Right kidney bruised by blow. Four cubic centimetres staphylococcus pyogenes aureus injected hypodermically, animal becoming ill on third day. Killed on seventh day. Autopsy: in both kidneys, multiple septic infarcts present. Other organs normal. On microscopic examination, multiple small abscesses with parenchymatous degeneration found in both kidneys. Somewhat more marked change in injured kidney.

Experiment 13. Small brown rabbit. Ether. Right kidney bruised by blow. 1.5 c.c. streptococcus solution injected into ear vein. Animal died on fifth day. Autopsy: right kidney hemorrhagic infarct; left kidney normal; other organs normal. Microscopic examination of right kidney showed hemorrhagic infarct with numerous bacterial emboli in surrounding necrotic area. Left kidney normal, except for a few deeply stained small areas near one papilla, probably bacterial emboli.

Experiment 14. Small brown rabbit. Ether. Right kidney bruised by blow. One-half cubic centimeter typhoid solution injected into ear vein. Animal killed on seventh day. No gross lesion of kidneys, except subcapsular hemorrhage in injured organ. Microscopic examination revealed hyperemia and degeneration, most marked in right kidney.

Experiment 15. White rabbit. Ether. Left kidney bruised by blow. Two cubic centimetres typhoid injected into ear vein. Animal killed on seventh day. No gross lesion found at autopsy. On microscopic examination, parenchymatous degeneration of injured kidney seen. Opposite kidney normal.

Experiment 16. Brown rabbit. Ether. Left kidney injured by blow on flank. Four cubic centimetres pneumococcus broth injected into ear vein. Death in thirty-six hours. At autopsy, right kidney apparently normal. Left kidney acutely congested. Subcapsular hemorrhages. Numerous areas of parenchymatous hemorrhage throughout cortex. On microscopic ex-

amination cortex found studded with minute areas of extravasated blood. In and about these areas are seen very numerous groups of diplococci, some occupying region of tubules, the epithelium of which has undergone marked degeneration. On the periphery of these areas, masses of diplococci may be seen filling the lumen of the capillary vessels. Well-marked exudation of pus-cells surrounding these areas and in the stroma. Right kidney showed marked hyperemia and cloudy swelling.

A review of these experiments will show that none of the control animals which had received a moderate dose of pathogenic bacteria directly into the circulation without other injury, developed a surgical lesion of the kidney. Of the sixteen animals which, in addition to the inoculation, received an injury to one kidney five showed no lesion, or only hyperemia and parenchymatous degeneration. Two of these animals died within twenty-four hours of acute septic intoxication. Of the remaining eleven, all developed surgical lesions of the kidney. In eight the lesions were unilateral, and limited to the injured kidney. In three the lesions were bilateral. In one of the bilateral cases the lesions were practically equal in extent and in severity. In the other two the lesions in the uninjured kidney were mild in character, and the animals undoubtedly would have recovered under favourable conditions.

The following experiments were undertaken to determine the effect of a more or less complete anemia, and other vascular changes in lowering the resistance of a kidney to a blood infection.

Experiment 17. Small mongrel dog. Left kidney exposed and renal artery diminished in calibre by incomplete ligature. Pulsations, however, could still be felt in kidney. *B. coli* injected into ear vein. Dog apparently free from evidences of illness. Autopsy one week later revealed large abscess in upper half of kidney with strong colon odour. Opposite kidney and other organs negative. Microscopic examination; local abscess, kidney parenchyma infiltrated with leucocytes. Acute degeneration. Right kidney normal, except for scattered hemorrhagic areas.

Experiment 18. Small mongrel dog. Left kidney exposed and renal vein ligated. *B. coli* injected into ear vein, dog becoming sick and weak; blood passed in urine. Autopsy at the end of seven days; left kidney completely destroyed by purulent infiltration and necrosis. Strong colon odour. Opposite kidney and other organs negative. Microscopic examination: left kidney, acute degeneration of parenchyma; purulent infiltration and ab-

scuss formation. Right kidney nearly normal; slight hyperemia; scattered areas of extravasated blood.

Experiment 19. Small mongrel. Left renal artery tightly ligated. *B. coli* injected into ear vein. No sign of illness. Autopsy at end of one week. Left kidney shrunken and anemic. A number of small abscesses in cortex, probably due to some small anastomosis or aberrant artery. Opposite kidney and other organs negative. Microscopic examination: in left kidney acute parenchymatous degeneration, infiltration with leucocytes. In right kidney only slight congestion of vessels.

Experiment 20. Fox-terrier. Left kidney exposed and upper branch of renal artery tied. *B. coli* injected into ear vein. No sign of illness. Autopsy one week later showed upper posterior half of kidney shrunken and anemic. One small abscess on outer surface. Opposite kidney and other organs negative. Microscopic examination: medullary portion undergoing degeneration. Cortex infiltrated with leucocytes. Numerous hemorrhages filled with deeply staining tortuous areas, probably calcified tubules. Right kidney normal.

These cases illustrate the fact that anemia and passive hyperemia so lower the resistance of the organ to a blood infection as to result in definite surgical lesions. In this connexion it is interesting to recall the experiments of Lucas and Burton-Opitz, who demonstrated that under conditions of increased pressure in the renal pelvis and ureter the renal circulation was greatly diminished, for it explains the marked susceptibility to infection in cases of hydronephrosis.

A number of other experiments were undertaken to determine the effects of small inert emboli in the production of surgical lesions by means of a blood infection. The minute seeds of blue moss were employed. In nine instances (Experiments 21 and 30) these were injected into the general arterial circulation, and the animals subsequently inoculated as in the other experiments. All of these dogs died, most of them from symptoms of shock, probably due to cerebral infarcts. One had an acute hemorrhagic pancreatitis, while two showed a very few renal infarcts, but without evidences of sepsis. It is probable in these cases that only a few seeds reached the kidney and the damage done was not sufficient to lower its resistance in any great degree.

I regret that there was not sufficient time at my disposal to follow up this line of inquiry by further experimental study, as

it might have a practical bearing on the probability of reinfection of a kidney which had recovered from a previous mild attack of infarcts.

In reviewing the microscopic study of the lesions produced in these experiments, definite lesions, when present, were found identical with those found in our clinical hematogenous infections. In most instances they were found to be due to a plugging of the smaller arteries and capillary vessels with groups of organisms. These minute emboli are later surrounded by an encircling zone of round-cell infiltration. Where the larger trunks are thus involved, triangular infarcts are present; where the capillaries only are involved, minute abscesses are seen throughout the cortex and beneath the capsule. If the process is allowed to go on, the bacterial emboli are rarely recognized; only areas of necrosis and purulent infiltration are found. At a still later stage many of these collections of pus coalesce, forming larger parenchymatous abscesses, which may rupture through the capsule, giving rise to a perinephritis, or into the pelvis, giving the typical picture of pyelonephritis. In some of the cases the condition has been described as an acute, purulent, interstitial nephritis. In my opinion, all of these appearances are but different stages of the same process.

SYMPTOMATOLOGY

In discussing the clinical aspects of acute renal infection, it must be borne in mind that the ordinary clinical types of surgical kidney, described in the text-books as pyelitis, pyelonephritis, pyonephrosis, renal abscess, or perinephritic cellulitis, are in reality only the terminal lesions of a pathologic process, and that they may result alike from an ascending or from a blood infection.

Of the hemic infections we recognize three types. The first and gravest of these, the hyper-acute, or fulminating, fortunately rare, is so virulent that it proves fatal in a large number of instances long before any definite renal symptoms have time to develop. In this type the clinical picture is often one of an acute general infectious disease, in which the local manifestations are so slight and so generally overshadowed by the symptoms of general toxemia that they are frequently overlooked, unless a more than ordinarily careful physical examination is made.

There is also a type somewhat milder than the one just mentioned, but still associated with a grave prognosis, not on account of its own initial virulence, but for the reason that if unrecognized

and untreated it progresses insidiously to the development of one or more of the classical terminal lesions. This type often is recognized only after complete destruction of one kidney, and serious interference with functional activity of the other through toxic degenerative changes.

There is still a milder type, which almost invariably recovers spontaneously without serious damage to the renal parenchyma; and which is of interest to the surgeon chiefly for the reason that it furnishes a rational explanation of the so-called "idiopathic pyelitis," and also for the reason that it accounts for certain ephemeral rises of temperature observed after surgical operations, or during convalescence from some infectious process.

These three types, the fulminating, the intermediary, and the mild, can best be described by giving the clinical histories of typical examples which have come under my personal care and observation.

THE FULMINATING TYPE

Case I. A woman, 31 years of age, was admitted to the Roosevelt Hospital in a condition of profound septic intoxication. She had had occasional attacks of abdominal pain of short duration for the past six months. Eleven days before admission she experienced severe pain in the right side of the abdomen and flank, extending upward to the chest; this was accompanied by chills, high fever, delirium, and great prostration. At the time of her admission to the hospital her temperature was 106° F.; pulse rapid and weak; leucocytes, 35,000. On palpation the only sign that could be elicited was tenderness and muscular rigidity in the right kidney region. The urine contained albumin and a few pus-cells. As her condition was extremely critical she was immediately prepared for operation. On exposing the right kidney there was found a small focus of pus in the fatty capsule near the kidney cortex. The condition of the patient would not admit of further exploration, and she was saved from death on the table only by an intravenous infusion of salt solution. The temperature rapidly rose to 108° F., and she died in a few hours.

Autopsy revealed limited suppuration and general edema of the perirenal fat; a large, deeply-congested, and edematous right kidney, which on its cut surface presented literally thousands of minute septic infarcts and miliary abscesses. No other septic focus could be found in the body. The left kidney and other organs gave evidences of advanced parenchymatous degeneration.

Cultures from the right kidney and blood showed the staphylococcus pyogenes aureus. This case illustrates the course of the disease when uninfluenced by treatment, for the brief five-minute anesthesia and the opening of a small perirenal focus, leaving the kidney lesion untouched, could not by any possibility be regarded as rational surgical treatment.

Case II. Seen by one of my medical colleagues, to whom I am indebted for the pathologic material, illustrates the same rapidly fatal clinical picture brought about by the *B. typhosus*.

A middle-aged woman, convalescent from typhoid fever, was seized with a chill and sudden rise of temperature, with pain over the region of the appendix and right flank. At first the symptoms were thought to be due to appendicitis, but the rapidly progressive toxemia which ensued so obscured the clinical picture that no diagnosis was made. She died about the seventh day from the onset of her symptoms. Autopsy revealed the evidences of her recent typhoid fever, and in addition a right kidney surrounded by an edematous fatty capsule. The kidney itself was enlarged, of a deep purple color, and everywhere on its surface studded with minute deeply-congested elevations. On the cut surface there were innumerable septic infarcts, but no suppurative areas.

Cultures gave a pure growth of *B. typhosus* of an extreme virulence, as evidenced by subsequent inoculations on rabbits and dogs.

These cases illustrate the course of this severe type of unilateral hematogenous infection of the kidney when untreated.

The following case is one of a series of four treated by nephrotomy and drainage.

Case III. The patient was a man aged 21 years, who, at first, complained of general pain and fever. The symptoms temporarily subsided, but three weeks later pain occurred over the right kidney region, and was accompanied by a rapidly rising temperature and other symptoms of progressive sepsis. On examination there were tenderness and some muscular rigidity in the right flank. The urine was albuminous, contained some pus, a few red cells, and casts. Urine from right kidney was scanty, highly albuminous, contained many red cells, and a few white cells; that from the left practically normal. Temperature 104.4° F.; leucocytes 20,000. No evidence of other septic foci could be found. The right kidney was exposed by lumbar incision, and

freely opened by a cortical cut. The entire parenchyma was studded with minute abscesses. Drainage was inserted, and the wound partly closed. There was marked improvement in the symptoms, which continued for several days, but this improvement was succeeded by a gradual return of the septic manifestations, with scanty albuminous urine, delirium, and death. On autopsy the right kidney was found to be completely destroyed by numerous abscesses. The left kidney, spleen, and other organs showed the presence of very recent septic infarcts, which had not broken down. Cultures demonstrated streptococcus pyogenes. In this case the lesion was evidently unilateral at the time of the first operation, and, had the kidney been removed at that time, recovery would probably have occurred.

The following cases, also of the fulminating type, are selected from a series of ten, under the care of the writer, which were treated by early nephrectomy.

A woman, aged 22 years, experienced a severe pain in the epigastrium and right side of abdomen, with vomiting and high fever. She was sent to the Roosevelt Hospital with a diagnosis of acute appendicitis. On examination the appendix region was free from evidence of inflammation. There were, however, pain and muscular rigidity in the right hypochondriac region, with tender points over the gall-bladder and costovertebral angle. Temperature 104.3° F.; pulse 120; leucocytes 18,000. Cystoscopic examination was negative; urine from the right kidney scanty and slightly albuminous, few pus- and blood-cells; that from the left kidney was abundant and apparently normal. Widal negative; no plasmodia; no tubercle bacilli in the urine. The diagnosis rested between an acute infection of the gall-bladder or kidney. Small anterior incision; gall-bladder and liver found to be normal, but the right kidney seemed to be enlarged. Anterior incision united, and the kidney exposed by lumbar route. The perirenal fatty tissue was edematous: the kidney enlarged, highly congested, and the seat of innumerable small infarcts. Nephrectomy performed. After operation the temperature fell from 105° to 97° F. within twelve hours, and thereafter remained practically normal.

She made a satisfactory convalescence. Microscope examination of the specimen showed it to be filled with minute embolic abscesses. Culture report unrecorded.

One year later this patient married and became pregnant. I

had an opportunity of examining her urine before and after her confinement. It was normal in every respect. Her confinement was normal, and she presented the picture of robust health two months later.

In January last I saw a young married woman at the Bronxville Hospital suffering from high fever, pain in the right half of the abdomen, and progressive prostration. These symptoms had been preceded by an attack of tonsillitis, which had apparently subsided. Following this attack there was a chill and sudden rise of temperature to 104° F., with pain in the right flank and appendix region. A remission in the symptoms occurred for two days, but was followed by a second seizure more severe than the first, with rapidly advancing signs of septic intoxication. The temperature ranged between 103° and 105° F.; pulse 100 to 120. Urine scanty and highly coloured, and showed on examination a trace of albumin; some red and white blood-cells. Muscular rigidity and tenderness over appendix and gall-bladder regions with more acute tenderness to pressure over the costo-vertebral angle. Blood examination revealed a high polynuclear leucocytosis. Cystoscopic examination with catheterization of the ureters showed urine from right kidney to be scanty, highly albuminous, and containing many red cells and leucocytes; that from the left kidney more abundant, and a small percentage of albumin, few red and white cells. The right kidney was exposed by lumbar incision; perirenal fat edematous, kidney swollen, highly congested, and presented on its surface three large and innumerable small raised areas of a deep purple colour. Nephrectomy followed by layer suture of the wound with one small cigarette drain. There was marked improvement in the patient's condition almost immediately after the operation. The temperature quickly fell to the normal, the wound healed primarily, all stitches were removed on the tenth day, and she left the hospital eight days later.

On bisecting the kidney there were two large triangular infarcts and numerous small areas of necrosis, but no pus. Cultures gave a pure growth of the colon bacillus.

Another case operated upon at the Roosevelt Hospital during the same month by my assistant, Dr. Russell, presented a similar clinical history.

The patient was a man 28 years of age. Without history of previous urinary symptoms he suddenly experienced a chill,

followed by a rise of temperature to 104° F. with pain in the right flank. Following this there was a short remission, when he was seized by another attack of right lumbar pain, with a second rise of temperature to 105° F. There were anorexia, slight nausea, and general evidences of severe toxemia. Cystoscopic examination revealed a normal bladder mucous membrane. Catheterization of the ureters resulted in a scanty flow of urine from the right side, which contained albumin, blood, and many pus-cells; urine from the left side normal in appearance and reactions. As the toxemia increased rapidly, the right kidney was exposed under general anesthesia. The fatty capsule was edematous, the kidney enlarged and highly congested. The surface was covered by a number of deep-red elevated areas, and one large central discoloured area extending from the pelvis to the cortex. The kidney was removed with considerable difficulty, owing to the presence of a large aberrant artery to the upper pole. During the operation the pelvis, which was considerably dilated, was ruptured, and a large amount of purulent urine escaped. On exposing the lower pole a second aberrant vessel was found passing from the aorta to the inferior extremity of the kidney, which compressed the ureter, accounting for the accumulation in the pelvis. The symptoms subsided immediately after the operation, and the patient made a satisfactory recovery.

In this case we evidently had to do with a moderate hydronephrosis, caused by the pressure of the aberrant vessel on the ureter. This diminished the resistance of the kidney to such an extent that the presence of a moderate bacteriemia resulted in an acute infection, almost destroying the organ. Unfortunately the result of the culture in this case was not recorded. On cut section this kidney also presented numerous large and small areas of necrosis, which destroyed the greater part of its parenchyma.

That the acute nephritis following scarlet fever, and the other exanthemata, may often be unilateral and of embolic origin, the following illustrative case may be of interest:

A female child, 3 years of age, was brought to the Vanderbilt Clinic suffering from left-sided abdominal pain, high fever, and great bodily weakness. The temperature was found to be 103.4° F.; pulse 130. An examination of the chest and abdomen was negative; slight tenderness in the left costo-vertebral angle. Urine drawn by catheter was found to be albuminous, and contained a few pus-cells. No vesical irritability, no other sign of

local infection. The patient was transferred to the Roosevelt Hospital, where it was discovered that the hands and feet were desquamating. Inquiry regarding exanthematous disease revealed the fact that she was supposed to have had measles four weeks before she was admitted. She was subsequently examined by Professor A. Jacobi and an inspector from the Board of Health. Both pronounced the condition in all probability one of scarlatina desquamation. The infant was removed to her home and quarantined. Five days later the mother came to the clinic and reported that the child had grown steadily worse and was apparently dying. The temperature had ranged between 103° and 105° F. during the week; the pulse from 130 to 160; the urine was scanty and cloudy; the child was thoroughly prostrated. Assisted by Dr. Turnure and Dr. Darrach of the Vanderbilt Clinic surgical staff, I did a hasty nephrectomy in the parent's home. The kidney was surrounded by an edematous fatty capsule; the organ was enlarged and highly congested; the fibrous capsule presented nothing abnormal, but on stripping it from the renal parenchyma the surface of the kidney was covered with deep violet, oval, and irregular lesions, which, upon section, contained bloody serum and granular-necrotic tissue. On section the cut surfaces presented many similar lesions and a number of triangular infarcts. Cultures taken from several lesions with the greatest care showed no growth after three days. The improvement in the child was marvellous. The temperature dropped several degrees within twelve hours, the pulse improved, and the infant made an uninterrupted recovery.

The child was reported well two years or more after the operation. The negative culture in this case strongly suggest the scarlet fever organism as the etiologic factor.

These cases will serve to illustrate the various phases of the hyper-acute or fulminating type of unilateral hemic infections of the kidney.

From a careful clinical study of perhaps eighteen or twenty examples of this severe type, I may briefly summarize the symptomatology as follows:

The disease may or may not be ushered in by a chill. When present it generally indicates a severe type of infection. The initial rise of temperature is high, generally 104° or 105° F.; pulse frequently 120 or above. The toxemia is marked from the first, and, with high fever, suggests often an acute grippe, lobar

pneumonia, or one of the exanthemata. Then follows a more or less vague pain in abdomen, or flank, corresponding to the side of the lesion. Tenderness and muscular rigidity over the region of the appendix, or gall-bladder, lead often to error in believing one of these organs to be the seat of disease. As the urinary secretion from the infected kidney is greatly diminished, and is largely diluted by the abundant secretion from the unaffected organ, the mixed urine, when passed or drawn from the bladder, is often quite normal in appearance, and the slight trace of albumin, blood, and pus is often overlooked unless a more than ordinarily careful examination is made. The one pathognomonic sign present in all cases is a marked unilateral costo-vertebral tenderness.

I now desire to call your attention to the second or intermediary type, which constitutes by far the largest class. These cases, like the preceding group, often simulate in their early symptomatology, appendicitis, cholecystitis, or abscesses of the liver. If unrecognized and unrelieved by appropriate treatment they go on to the formation of the more definite and more easily recognized terminal lesions, as renal abscess, perinephritic abscess, pyelonephritis, or pyonephrosis. The lesions in these cases, while the same in general character as in the severe type, are fewer and more scattered, and the amount of renal tissue involved is less. Early stripping of the capsule from the organ when the lesions are small, or combined with the opening and draining of cortical abscesses or areas of necrosis when present, constitutes the best treatment, and in the great majority of instances will save the kidney. In certain instances, where the treatment has been delayed too long, the suppurative process continues and a secondary nephrectomy may be necessary.

The following cases may serve as examples:

A woman, 26 years of age, complained of right-sided abdominal pain, with nausea, headache, fever, and general prostration. Ten days later she was admitted to the Roosevelt Hospital. Temperature 102° F.; pulse 120; leucocytes 19,000, of which 81 per cent. were polynuclears. The following day the temperature rose to 104° F.; 82 per cent. polynuclears on differential count. The patient was then cystoscoped. The examination of the bladder was negative; ureters were catheterized, and from the right there was a scanty flow of urine, containing albumin, a few pus-cells, and blood; from the left more abundant

flow, a few red cells, practically no pus. Physical examination revealed tenderness in the right costo-vertebral angle. The kidney was not palpated. Left side free from tenderness. Operation, performed by lumbar incision, revealed edema of the perirenal fat. The kidney was highly congested and presented six distinct cortical areas of induration. Each of these was opened and packed with separate strips of gauze tape, which were allowed to protrude through the partly closed parietal wound. Of the six lesions, only one contained pus; the others, necrotic tissue. The renal pelvis was opened; the mucous membrane appeared normal. Cultures made from the pus showed the *Bacillus coli communis*. The patient made a tardy but complete recovery.

The next case, still more subacute, is of interest on account of the fact that the lesion resulted in complete absence of function.

It was that of a married woman, 23 years of age, who was admitted to the Roosevelt Hospital with a diagnosis of renal calculus. Seven weeks before admission she experienced a severe pain in the right loin, radiating to the groin and thigh. The pain continued for two or three hours and then subsided. Following the paroxysm of pain she had a severe chill, with fever and vomiting, which lasted for two days. During this period the temperature reached 103.4° F. Since the acute attack the patient had complained of more or less constant pain and discomfort in the region of the right kidney and ureter, with occasional attacks of a more acute nature. On admission to the hospital she seemed weak and anemic. Her temperature was 102.4° F.; pulse 120; and the blood count showed 10,000 leucocytes, 56 per cent. polynuclears. Physical examination revealed tenderness in the right costo-vertebral angle, and along the course of the ureter to the pelvic brim. On cystoscopic examination the bladder appeared normal. There was no efflux from the right ureteral orifice, but an abundant flow from the left. Both ureters were catheterized. From the left there was an abundant flow of normal urine, from the right only a few drops were obtained after forty-five minutes. X-ray examination was negative. From these findings a diagnosis of subacute infarcts was made and an operation advised.

Under ether anesthesia the right kidney was explored by a lumbar incision. The fatty capsule was somewhat thickened and adherent. The surface of the organ was studded with small whitish areas which were moderately indurated. No calculus was felt. The fibrous capsule was stripped from the organ, the kid-

ney replaced, and the wound sutured. There was a moderate febrile reaction following the operation, which subsided on the seventh day. The wound healed by primary union. All sutures were removed on the tenth day. Fourteen days after the operation she was again cystoscoped and the ureters catheterized. From both catheters there was an abundant flow, 12 c.c. from the right, and 15 c.c. from the left in twenty minutes. Although the urine from the right side showed a very faint trace of albumin, its percentage of urea was higher than that from the left, showing that its function had been practically restored.

Regarding the third group, or mildest type of the disease, it may be stated that it is of interest to surgeons chiefly on account of the fact that in its symptomatology, when located on the right side, it often closely simulates subacute appendicitis, as the following case will illustrate.

A young lady, aged 25 years, experienced an attack of right-sided abdominal pain, with fever, vomiting, tenderness, and muscular rigidity over the right lower quadrant. These symptoms had been preceded by a subacute attack of follicular tonsillitis. Her attending physician regarded the case as one of appendicitis, and asked me to see her in consultation, with a view to operation. At the time of my visit the temperature was 101° F.; pulse 110. There was a slight tenderness over McBurney's point, which extended upward nearly to the costal border. The muscles were moderately rigid. There was marked tenderness in the costo-vertebral angle. As no urinary analysis had been made, I declined to operate upon her, on the ground that, in my opinion, the lesion was a unilateral hematogenous renal infection. I ordered an examination of the urine, and predicted that a trace of albumin would be found, a few red cells, and pus, if the specimen was precipitated by the centrifuge. The analysis proved this prediction to be correct. The patient made a satisfactory recovery without operative treatment.

This mild type of disease is also of occasional interest in that it accounts for certain irregular periods of temperature occurring during convalescence from some surgical condition or infectious disease.

In these mild cases, pain is not often a prominent symptom and may be absent, the only sign being fever and a unilateral costo-vertebral tenderness to pressure.

As an illustration of the latter condition, permit me to cite the following case:

Mrs. X., aged 46, was operated upon for a subacute appendicitis in May 1906. During convalescence, after the temperature and pulse had been normal for several days, she complained of headache, pains in the back and extremities, chilly sensations, and fever. The temperature rose to 102° F., or more, and the pulse was accelerated.

Examination of the wound area was negative, primary healing having occurred. Examination of the throat, ears, heart, and lungs revealed nothing abnormal.

During a rather careful and systematic examination of the abdomen, distinct tenderness to pressure was found over the left costo-vertebral angle. This led to a very careful examination of the urine, which revealed a trace of albumin, a few red and white cells. Cystoscopy and catheterization of the ureters later gave the characteristic signs of an acute infection of the left kidney, the secretion from the right side being normal. She made a prompt recovery from the acute attack, but signs of a mild chronic nephritis persisted for many months.

These cases when recognized are generally diagnosticated as idiopathic pyelitis.

The writer may say in passing that he has never been able to produce in animals a hematogenous pyelitis, and has never seen a human specimen illustrating this type of disease. He firmly believes all of these cases, when not of ascending origin, to be mild cases of hemic infection of the kidney parenchyma in which the mucous membrane of the pelvis may or may not take part.

TREATMENT

As I fear that I have already trespassed too much on the valuable time of the section in presenting the pathological and clinical aspects of the disease, I will express my views regarding prognosis and treatment in the briefest manner possible.

In the first group, or fulminating type of the disease, early nephrectomy offers the only chance of life to the patient. To temporize, to procrastinate, or to adopt any other method of treatment, is but to invite disaster. My reasons for this positive statement are the following. I have personally observed sixteen cases of this severe type of unilateral infection. Of these, two were untreated; both died within twelve days. Four were treated

by nephrotomy and drainage. All died shortly after operation. Ten were treated by early nephrectomy. All recovered.

In the second group or intermediary type, early decapsulation will almost always abort the process and save the kidney from the development of those destructive lesions which would otherwise follow; but in these cases the success of the treatment depends upon early recognition and prompt operation. This relieves the acute hyperemia, particularly in the cortical zone in which the lesions are largely located, and favours the early inauguration of the processes of repair.

The writer has operated on perhaps eighteen or twenty cases of this type, and while there was no post-operative death in the series, on one occasion he was obliged to perform a secondary nephrectomy for advancing sepsis; in another, in which the function never returned, he performed nephrectomy for persistent renal neuralgia; and in at least one other case a persistent pyelonephritis has resulted. The end-results, however, in most instances have been satisfactory.

Regarding the third, or mildest type of the disease, all that is necessary in regard to treatment may be summed up in the three words, rest, water, and urotropin.

CONCLUSIONS

From a study of the experimental data here recorded, the results obtained by other investigators, and the accumulated clinical experience of the past two decades, we may conclude, first, that during the progress of any acute infectious disease a certain number of micro-organisms find their way into the blood-current, and that many of these organisms are excreted through the kidneys. If the number of these organisms is comparatively small, if their virulence is low, and if the kidneys are in a healthy condition, the transit of the organisms through the renal apparatus gives rise to no demonstrable lesion. If, on the other hand, the number of organisms is large, if their virulence is high, or if one or both kidneys are diseased, lesions are produced which have been described above, and which may at the outset produce an overwhelming and fatal toxemia, or may proceed more slowly to the development of any of the classical types of renal infection or suppuration; second, that while the disease may be bilateral, in a large number of instances it is unilateral, and that its unilateral character is due to the fact that the affected kidney has lost to

some extent its normal resistance to infection by trauma, abnormal mobility, previous disease, calculus irritation, anemia, passive hyperemia, complete, incomplete, or intermittent hydro-nephrosis: third, that the presence in the body of a kidney damaged by trauma or disease to such an extent as to lower its normal resistance to infection is a distinct menace to the individual, in that it possesses a potential susceptibility to even the mildest forms of blood infection; fourth, that while I have been able to produce these lesions in animals by the *B. coli*, the streptococcus pyogenes, the staphylococcus pyogenes aureus, the *B. typhosus*, the pneumococcus, and the pyocyaneus, in clinical cases I have only been able to isolate the first four of these organisms. It may be added, however, that in the number of clinical cases the results of my bacterial investigations have been negative, notably in one instance in which the disease was known to be sequel of scarlet fever.

From my experimental studies I have been impressed with the great difficulty in producing in animals an ascending nephritis, which is in marked contrast to the ease with which it is possible to induce a hematogenous infection. This would seem to corroborate my impression, derived from clinical observation, that hematogenous infection was responsible for the greater number of cases of renal sepsis, and would tend to establish the fact to which Israel and others have already called attention, that even in septic conditions of the lower urinary passages the concomitant renal lesion may be of hematogenous origin.

RECENT ADVANCES IN THE TREATMENT OF SYPHILIS *

By VICTOR VECKI, M.D. San Francisco

THE conservative, the progressive and even the indifferent physicians of this country have been almost unanimous in welcoming the newer additions to the diagnosis and therapy of syphilis. After our acquaintance with the spirochete and the Wassermann and other reactions and finally salvarsan and its possible improvements, it appeared as if the question, "Is syphilis a curable disease?" could be answered one way or the other.

After the first experiences, however, many practitioners began to wish that they had mustered the courage to remain old foggy souls and had adhered to old methods of diagnosis based on clinical observation and to old trusted methods of therapy.

One of San Francisco's busiest physicians voicing the sentiments of many of his confrères said, "In the good old times our syphilitic patients were easy to handle and could be numbered among our most grateful patients. Intermittent and sufficiently prolonged treatment was invariably followed by the expected results, the march of the disease could nearly always be predicted and accidents seldom, catastrophies almost never, happened. And where are we now? We are entangled in the paradoxes and contradictions of the blood and spinal fluid reactions, and neither physician nor patient knows where he is."

When Corbus¹ at the 1912 meeting of the Section on Genito-Urinary Diseases of the American Medical Association at Atlantic City promulgated the new truth that treatment of the syphilitic should be continued vigorously during the negative phase of the Wassermann reaction if we wished for a permanent result, not a few general practitioners asked the syphilologist why we needed the Wassermann at all, if we must treat the patient not only when the reaction is positive, but also when it is negative.

Unfortunately, things are not so simple as this reasoning would indicate. Whether the older practitioners like it or not, the Wassermann reaction has come to stay until supplanted by a better or simpler one, and, while an experienced syphilologist

* Read in the Section on Genito-Urinary Diseases of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

¹ Corbus, B. C.: Four Years' Experience with the Wassermann Reaction in Practice, *The Journal A. M. A.*, Oct. 5, 1912, p. 1267.

may not need the test so often as some laboratory owners think he does, he needs it often enough.

What we have learned so far justifies us in the opinion that the Wassermann reaction is something more than a simple symptom of syphilis, as some French authors maintain; but we do well in so regarding it from a practical point of view and in regulating our treatment accordingly, giving more energetic and longer treatment when we find the reaction positive, just as we would if skin or other clinical symptoms were present.

Parenthetically it may be stated here that one of the great merits of the Wassermann reaction is that, while formerly the opinions of various authorities in regard to the influence of alcohol on syphilis differed, it leaves no doubt that syphilitics should be total abstainers. This certainly means an advance when we consider that in former times one of the most popular antiluetic remedies, Van Swieten's liquor, was given in rum and water in order to disguise its objectionable taste.

After mercury had been relied on for more than four centuries as the mainstay in the treatment of syphilis, after every single remedy boosted from time to time as a more or less innocuous substitute was found useless, or at least of limited usefulness, and just when most syphilologists began to understand the best ways of using mercury and what its possibilities were: when the prejudice against mercury among laymen began to disappear, and patients rushing into the physician's office with distinct syphilitic symptoms and the dictum, "no mercury for me," began to become rare specimens, the great arcanum, salvarsan, the catchy "606," was heralded *urbi et orbi*. Like a pack of hungry wolves the newspaper men, the syphilitics and their doctors threw themselves on it, every one of them striving for the *sterilisatio magna*. But ah! naught seemed to be just the way it should, and all those who expected so much were wofully disappointed. The number of tragedies enacted and disasters caused will never be known.

On the contrary, the cautious ones, the unbelievers and those who did not expect much, were highly gratified to have obtained a new weapon against syphilis, however limited its usefulness might be. We know at present some of the shortcomings of salvarsan, and time will tell what it does in the long run.

In the era of the first enthusiasm everything seemed to be simple and most pleasant: first a salvarsan, then a Wassermann and then the result. Wassermann negative, Eureka! But un-

mistakable symptoms shortly after such a decisive victory were a frequent and disagreeable surprise. Then the old mainstay was rigged up again, and now we have the modern therapy of syphilis, the combined treatment. We must hope that this combination will at least shorten the time of the necessary period of treatment and thus prove superior to the best methods used in the presalvarsan time; but even now we are justified in saying that salvarsan and its so-called improvement, neosalvarsan, may not be indicated so often as their German patentees may wish; but when it is indicated we should be glad to have it.

When we speak of real advancements in the therapy of syphilis we surely must not forget the most important progress made, that is, the gradual adoption of the method of employing the mercury in the form of intramuscular injections. While most syphilologists were long ago compelled to admit that the best results in the treatment of syphilis were being obtained by intramuscular injections of insoluble mercurial preparations, even Fournier, the father of the intermittent and prolonged treatment of syphilis, advised as late as 1906 against the injection treatment. We were told and students were taught that these injections for various reasons should not be employed as a routine treatment, but only when rapid action was essential, as in the more malignant forms of the disease. And I kept on asking, "When, in any case of syphilis, is rapid action not essential, nay, imperative? And how are we to know if and when any case of syphilis may become malignant? Finally, why should we wait until a given case of syphilis does become malignant?"

We know now that intramuscular injections of insoluble mercurial salts can be given with absolute safety; that when the proper preparations are used in the right way, the patient is never in any danger; that even calomel, the master of all mercurial compounds, can be injected, the disadvantage of causing abscesses avoided and the ensuing pain reduced to an easy tolerable minimum. To Ziegler of Berlin belongs the credit of having first advised detaching the needle after the injection is made, in order to fill the syringe with air, and then pressing this air through the needle *in situ*. By this procedure the needle is freed from any remnants of the medicament which may ooze into the subcutaneous tissues and cause abscess formation.

A further great advance in syphilis therapy is the adoption of highly concentrated mercurial preparations for intramuscular

injections. By using preparations of unquestionable purity and exactness, a specially constructed syringe to insure accurate dosage and a minutely faultless technic, we are now in a position to use calomel, gray oil (mercurial oil) and mercury salicylate in 40 per cent. suspensions.

As Dr. Philip Rahtjen, the serologist to the German Hospital of San Francisco, in observing many serums, has found, and as my controlling observations have confirmed, patients with nephritis, lipemia, cholesteremia and also some diabetics have a cloudy and milky blood-serum as long as they are is no immediate danger *quoad vitam*. One or two days before death the serum clears up and becomes of normal color. The milky serum in the aforementioned cases contains an abnormally increased percentage of lipoids.

These lipoids, however, are not of the kind which, in all probability, is the cause of the positive Wassermann reaction. These patients, therefore, show a positive Wassermann reaction only when also luetic. Only serums from persons with diabetes acidosis might give a positive Wassermann reaction in patients who have never had syphilis.

We have further found that the presence of bile-pigment in the blood—as in patients with icterus—prevents a positive Wassermann reaction.

Rahtjen thinks that the positive Wassermann reaction is, in all probability, caused by the increased amount of lipoids, especially of the cholesterin group. To prove this he used an infinitesimal amount of a solution of cholesterin in acetone (0.001) in place of the usual antigen, the alcoholic extract of a luetic liver, and obtained exactly the same reaction as in the control tests made with regular antigen. In fact, Rahtjen had two reactions which were rather doubtful, so-called plus-minus reactions with the regular antigen which were decidedly positive with the cholesterin solution. Both patients had a luetic history and were treated for a long time. As we know that both ether and chloroform are powerful lipid solvents we may thus explain why patients in or after a chloroform or ether narcosis show a positive Wassermann reaction.

Rahtjen found that metasymphilitics or parasymphilitics have a permanently increased amount of lipoids in the blood and in the spinal fluid, and we ascertained that no amount of treatment will

produce a permanently negative reaction of the spinal fluid and seldom of the blood-serum.

Brem of Los Angeles is of the opinion that no patient should be discharged as cured before the spinal fluid gives a negative Wassermann reaction, as he thinks that examination of the cerebrospinal fluid promises to be the means of determining beforehand which patients are candidates for the parasymphilitic nervous affections.

It is surely imperative that in all cases in which differential diagnosis is of importance the spinal fluid should be tested. Rahtjen recommends employing the more sensitive modification of Jacobsthal; that is, the test made on ice instead of in the water-bath at blood temperature (37 C., 98.6 F.) as the results obtained compensate fully for the increased amount of work and time employed in this modification.

Wassermann's method of testing blood-serum and spinal fluid has taught us that it is time to drop our talk of parasymphilis and simply *adopt a fourth stage of the disease, a lues quartana*, but it has also taught modern syphilologists that there can be *no routine treatment* for syphilis. Every single case must be studied and the treatment modified accordingly.

We read in the older text-books that the patient must be treated for several months after the secondary symptoms have disappeared. Gradually this time was extended to twenty-two months, two, three, four and five years. Now *we know that the syphilitic, in order to be absolutely safe, must be watched and eventually treated all his life.*

The question, When shall we permanently discontinue the treatment of any luetic patient? can be answered only one way and that is by saying, When we are sure that there are no more living spirochetes anywhere in the body. We must wait for the answer to our timely question, How can we make sure that there are no living spirochetes in any patient's body?

While we know that there can be no inflexible rules in the treatment of syphilis, there are a few established facts well worth emphasizing and which should be considered in every case.

Abortion of syphilis is possible in the primary and the early secondary stages. Excision of the primary induration or its infiltration with mercury and the energetic use of salvarsan may succeed in obtaining that great desideratum, the freeing of the system of all spirochetes. The excision should be done more

frequently and surely not only, as Marchildon recommends, in cases in which the *spirocheta pallida* is shown by dark-stage examination but in which the Wassermann reaction is negative.

We do not know exactly how the spirochetes multiply, but we do know to our sorrow that they do. Salvarsan destroys spirochetes, but very seldom all of them. Those that survive seem to multiply rapidly; therefore the short duration of the sometimes surprising results obtained.

In the tertiary stage of the disease and for the so-called parasyphilitics salvarsan is of limited use as to permanent results. Mercury works differently and seems to impair the vitality and reproductiveness of the spirochetes.

Mercury is not only still in the ring, but also, for the time being, must be awarded the decision.

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SEXUAL IMPOTENCY IN THE MALE

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AUTHORIZED TRANSLATION. EDITED WITH NOTES AND ADDITIONS BY
DR. W. J. ROBINSON

[Continued from the November Issue]

CHAPTER XXIII—CONTINUED

AZOSPERMIA RESULTING FROM IMPASSABILITY OF THE SEMINAL DUCTS.

The most frequent cause of azoöspemia is the obstruction of the vasa deferentia or the epididymes resulting from bilateral epididymitis. Finger collected 242 cases of bilateral epididymitis from the literature on the subject (Gosselin, Godard, Liégéois, Terrillon, Bergh, Neisser, Nöggerath, Hehrer, Lier, and Ascher), in 207 of which azoöspemia resulted. The result of these statistics agrees entirely with the experiences of Finger and myself, and we can subscribe in all points to the statement of Fürbringer: "Gonorrhea is the greatest enemy of the generative power."

It had already been shown by Milton that the antiphlogistic treatment of epididymitis by means of ice-packs led most often to the obstruction of the seminal ducts.

But complete azoöspemia may also result from unilateral epididymitis. Benzler found the marriage sterile in 23.4 per cent. of the cases of unilateral epididymitis.

We can explain this remarkable disappearance of the spermatozoa in these cases in one of two ways: either the spermatogenesis in the other gonorrheally undiseased testicle has been destroyed from congenital causes or destructive processes of another kind; or an inflammation of the vas deferens of the other testicle, which the patient did not notice, has occluded the orifices of both ejaculatory ducts.

The symptoms which patients with bilateral occlusion of the seminal ducts show are often quite characteristic, but in most cases there are not the slightest signs of the affection except in the microscopic examination of the ejaculation.

We can palpate the dense infiltrations in the epididymis in most cases, most often in its tail, as irregular, dense, often painful nodules; but there are plenty of cases, where the epididymis heals without any palpable residuum and yet azoös-

permia results. Here the occlusion of the seminal passage is probably to be sought further up in the vas deferens.

The last mentioned cases are according to our observation most often characterized by peculiar colicky pains in the testicles during or after each coitus. These patients have also a violent pain in connection with nocturnal pollutions, which begins, resembling labor pains, in the testicle itself and passes upwards along the inguinal region and towards the anus. We designate this pain as "seminal or spermatic colic," and seek to explain it as follows: Abundant semen is still produced in the testicle, which is closed by the cicatrization of the vas deferens and this semen thrown against the obstruction in the seminal duct by the strong peristaltic movements of the vas deferens produces the colic. We have indeed not rarely heard the complaint, that the testicle which had suffered from gonorrhea swelled greatly during every act of coitus.

The experience of pathologists as well as the results of animal experiments explain this phenomenon.

Curschmann found in the formerly gonorrheal testicle widening of the vas deferens and thickening (muscular hypertrophy) of its wall. The widened spaces of the vas deferens and the epididymis were filled with a viscous yellow fluid, containing more or less altered spermatozoa, epithelia which had undergone fatty degeneration and detritus.

Kehrer's animal experiments with ligation of the vas deferens showed a completely analogous behavior; spermatogenesis ceases after five to nine months. Human pathology also teaches that it is rare that the testicle atrophies after a gonorrheal epididymitis. Even after many years one cannot as a rule detect any difference in size between the two testicles, the healthy and the diseased.

In uncomplicated cases potentia cocundi, sexual desire, ejaculation and orgasm are not at all affected by this mechanical azoöspemia.

"OLIGOZOOSPERMIA," semen with diminished number of spermatozoa, has properly no especial pathologic significance.

The ejaculation is usually poorer in spermatozoa after repeated coitus. The semen may also contain fewer spermatozoa after unilateral atrophy, castration, or epididymitis than when both testes are functioning properly. According to the investigations of Ribbert and others there occurs, however, as

in other paired organs, also in the testicle a vicarious, increased functioning and hypertrophy of the healthy organ, when the testicle on one side fails in its function.

Finger calls attention to a biologically interesting difference; he found in cases of one-sided atrophy (extirpation of the testicle) the organ on the other side "surprisingly well developed and the number of spermatozoa normal," while in obliteration of the seminal passages from epididymitis or inflammation of the vas deferens the result was oligozoöpermia.

We give our opinion with reserve that the impulse to vicarious hypertrophy of the testicle on the other side is only given, when not only the spermatogenetic tissues but also the supporting substance (interstitial cells) have been destroyed. The internal secretion of the testicle, the effect on the secondary sexual character, and perhaps also the influence on the compensatory hypertrophy of the testicle of the other side are supposed all to be due to this interstitial tissue.

Oligozoöpermia (few spermatozoa) can only have pathologic significance when it is the forerunner of complete azoöpermia. The generative power may be retained, with persisting oligozoöpermia, after Röntgen illuminations of short duration and slight intensity, by which not all the spermatogenetic epithelia have been destroyed. In general, if we find in the ejaculate only a few but well-formed and highly motile spermatozoa, we entertain no doubts concerning the generative power.

By the expression "Asthenozoospermie" (weakness of the spermatozoa) Fürbringer denotes the condition, in which the ejaculate contains spermatozoa diminished not only in numbers but also in their motility. Also changes of form in the spermatozoa, which indicate incomplete maturation of the organisms, belong to the constant characteristics of "asthenozoöpermia":—"dropsical, distended heads, the tails kinked and spirally rolled up, ruffs, and other caplike and membranous appendages."

The clinical significance of these "monstrosities" and immature forms is still not entirely clear. ASTHENOZOOSPERMIA may be the cause of impotence; but Lier and Ascher observed prompt impregnation in spite of it.

NECROZOOSPERMIA (DEATH OF THE SPERMATOZOA).

The semen is also sterile, when the spermatozoa, although present in abundance, have lost their motility. We call this condition necrozoöpermia.

We know that the zoösperms produced in the testicle are at the beginning, that is in the testis itself, in the epididymis and in the vas deferens without motion, and that they first acquire the spontaneous motion, which is indispensable to their capacity for impregnating, through contact with the secretions of the seminal vesicles and especially that of the prostate. (Fürbringer.)

The lack of spontaneous motion may also be seen with completely normal genital organs, when as a result of too often repeated ejaculations a proper mixture of the semen has not taken place. As we have already mentioned, when too great demands are made upon the secretion of the genital glands, a fluid is ejaculated, which is as a rule not only poorer in spermatozoa than the normal, but in which the characteristic movements of the spermatozoa are also less active or even quite absent. The basis of this "necrozoöpermia" occurring under physiologic conditions is that, in the first place too young, immature sperm-cells are washed out, and, secondly, the production of sufficient prostatic fluid and its proper intimate mixture with the semen does not keep pace with the immoderate demands. This abnormal behavior of the ejaculated fluid has hardly a pathologic significance.

We have already said that oligozoöpermia, which may be a forerunner of azoöpermia, is often associated with necrozoöpermia.

The most frequent cause for motionlessness in the spermatozoa is a pathologic character of the vesicular and prostatic secretions, which are mixed with the testicular secretion.

All the conditions which can produce a diminished acidity, or cause alkalinity of the prostatic juice, may destroy the motility of the spermatozoa. Acute and chronic inflammation of the seminal vesicles and prostate, in which blood and pus are mixed with the secretions of these glands, (hemospermia, pyospermia) can change the composition of the ejaculated

fluid so that the spermatozoa lose their motility. Death of spermatozoa can especially be produced by chronic catarrhal prostatitis, as long as the prostatic secretion preserves its catarrhal character.

This condition is a temporary one, however, as a rule, for if we succeed in curing the chronic prostatitis, then the normal motility of the spermatozoa returns.

PYOSPERMIA, HEMOSPERMIA (PUS AND BLOOD IN THE SEMEN).

The admixture of blood gives to the semen a rusty color, or with abundant semino-vesicular granules an appearance like raspberry jam. Admixture with pus gives the ejaculation a yellowish color, perhaps tinged with green. The spots on the bed-linen, which come from dried semen containing pus, show characteristic yellowish green borders.

The causes of HEMOSPERMIA are inflammations, injuries, congestive hyperemia, or neoplasms of the genital glands. Cases of bloody semen are most often observed in gonorrheal prostatitis and posterior urethritis, in tumors and in hypertrophy of the prostate. The semen can also become bloody, when on its way through the urethra a bloody secretion from the latter is mixed with it. Bloody semen often occurs with increasing exhaustion of the genital glands in repeated, forced cohabitations.

Moreover cases have been repeatedly described, in which no cause was demonstrable for the hemospermia.

Pyospermia results from the admixture of pus to the ejaculation. The source of this pus may be anywhere in the whole course of the semen: in the testicles, epididymis, seminal vesicles, prostate, or urethra.

(To be Continued)

DEPARTMENT OF SEXUAL PSYCHOLOGY

By DOUGLASS C. McMURTRIE

AFFECTIONATE ACQUAINTANCESHIPS AMONG SCHOOLGIRLS

II

The phenomenon of affectionate acquaintanceships between girls at boarding schools and other congregate institutions is well-known to all educators. One girl conceives an enthusiastic attachment for another and there are observable in analagous form all the elements of heterosexual courtship. Such relationships are colloquially known in this country as "crushes," in England as "raves" and in Italy as "flames." Their occurrence is almost universal among institutions for girls in the adolescent period, but there seems to be no exactly comparable phenomenon among boys of a similar age and in similar circumstances.

The relationship in question is of great importance, because it exerts in a large number of cases a vital influence over the girls concerned—in many instances the most weighty influence bearing at the time upon the developing character. This being the case—and the truth of the preceding statement cannot be doubted—the subject should receive most careful attention at the hands of educators. Several questions demand determination. Is the manifestation beneficial or harmful? To what extremes does it go and in what degree is it susceptible to suppression or control? If it is inevitable, how can the resulting influences best be moulded and directed?

Yet this important phenomenon, well-known as it is, has received practically no scientific study. Every school-teacher dealing with girls must have made first-hand observations regarding it, but few of these have been recorded in the literature. I have spoken to several principals of schools where I knew "crushes" to be rampant, yet all of them disclaimed the existence of such infatuations in her institution and pleaded ignorance regarding the phenomenon. They had heard, however, that such things existed in other schools. All of them seemed to have a feeling of shame over the matter; whether this was due to the apparent silliness of the relation or to an instinctive apprehension of danger, it was impossible to determine.

To say the least, the matter seems to be of great pedagogic importance, and the object of the present mention is to urge some first-hand studies of the question by those dealing with schoolgirls addicted to crushes. It is not possible at this time to make an exhaustive review of the subject but for the benefit of

those interested—and there should be many—a brief summary of the facts may be set forth.

The phenomenon of the crush has undoubtedly a sexual basis. It is synchronized accurately with the adolescent period, and the infatuation with another girl is often the first social manifestation of the dawning sexual impulse. Being directed towards another girl it is, of course, of a homosexual character. In the majority of instances, however, the relations are of a spiritual nature only, so this latter circumstance need not be too seriously regarded. It is well, however, that educators should know that in some cases these schoolgirl infatuations lead to physical relations. Such situations should naturally be guarded against. Some details of these have already been mentioned⁵ in this journal. The salient feature of the relationship is its temporary character. It is of short duration only, being usually terminated by the entrance of some young man into the emotional life of one of the girls. This influence transcends the other and displaces it. We are thus led to conclude that the universality of the phenomenon is due to the need of an objective focus for the direction if not the gratification of the sexual impulse. Affectionate regard for another girl seems, therefore, largely *faute de mieux*.

In the present state of knowledge, the crushes do not seem to have a harmful effect upon the girls concerned, though any conclusion on this subject at the present time must be tentative only. It is clear, however, that the manifestation is fraught with several dangers which can be intelligently avoided only by an understanding of the considerations involved. An imitation of these dangers may be gleaned from the prevalence of inversion in various *internats* and convents. There devolves upon educators the duty of throwing more light on this important subject.

INTER-RACIAL HOMOSEXUAL INFATUATIONS

One of the few observations bearing on the question of school-girl crushes has been recently made by Dr. Margaret Otis.⁶ Her report is based on conditions at a certain reform school for girls and describes the tendency to crushes springing up between white and negro girls. Referring to such love-making the article

⁵ DOUGLAS C. MCMURTRIE. Principles of homosexuality and sexual inversion in the female. *American Journal of Urology*, New York, 1913, ix, 144-153.

⁶ MARGARET OTIS. A perversion not commonly noted. *Journal of Abnormal Psychology*, Boston, 1913, June-July.

says: "This particular form of the homosexual relation has perhaps not been brought to the attention of scientists. The ordinary form that is found among girls even in high-class boarding-schools is well known, and this feature of school life is one of the many difficulties that presents itself to those in charge of educational affairs. The difference in color, in this case, takes the place of difference in sex, and ardent love-affairs arise between white and colored girls in schools where both races are housed together.

"In one institution in particular the difficulty seemed so great and the disadvantage of the intimacy between the girls so apparent that segregation was resorted to. The colored girls were transferred to a separate cottage a short distance from the other buildings. The girls were kept apart both when at work and when at play. The girls were given to understand that it was a serious breach of rules for them to get together, and the white girls were absolutely forbidden to have anything to do with the colored. Yet this separation did not have wholly the desired effect. The motive of "the forbidden fruit" was added. The separation seemed to enhance the value of the loved one, and that she was to a degree inaccessible, added to her charms.

"In this particular institution the love of 'niggers' seemed to be one of the traditions of the place, many of the girls saying that they had never seen anything of the kind outside; but that on coming here, when they saw the other girls doing it, they started doing the same thing themselves, acting from their suggestion. A white girl on arriving would receive a lock of hair and a note from a colored girl asking her to be her lover. The girl sending the note would be pointed out, and if her appearance was satisfactory, a note would be sent in reply and the love accepted. Many would enter into such an affair simply for fun and for lack of anything more interesting to take up their attention. With others it proved to be a serious fascination and of intensely sexual nature. This line from one girl's note shows the feeling of true love: "I do not love for the fun of loving, but because my heart makes me love." One case is on record of a girl, constantly involved in these love affairs with the colored, who afterwards, on leaving the institution, married a colored man. This, however, is unusual, for the girls rarely have anything to do with the colored race after leaving school.

"Opinions differ as to which one starts the affair. Sometimes the white girls write first, and sometimes the colored. 'It might be either way,' said one colored girl. One white girl, how-

ever, admitted that the colored girl she loved seemed the man, and thought it was so in the case of the others. Another white girl said that when a certain colored girl looked at her, she seemed almost to mesmerize her. 'It made her feel crazy.'

"This habit of 'nigger-loving' seems to be confined to a certain set of girls. These would congregate in one part of the dormitory to watch at the window for the colored girls to pass by on their way to work. Notes could be slipped out, kisses thrown and looks exchanged. Each of these girls was known to be a 'nigger-lover.' When questioned on the subject, some insist that they do it just for fun. One said that the girls would wave to the 'niggers' just 'to see the coons get excited.'

"The notes when captured show the expression of a passionate love of low order, many coarse expressions are used and the animal instinct is seen to be paramount. The ideal of loyalty is present. A girl is called fickle if she changes her love too often."

Later it is observed that "sometimes the love is very real and seems almost ennobling. On one occasion a girl, hearing that danger threatened her love in another cottage, was inconsolable."

It was not found that the practices referred to were prevalent exclusively or even largely among the defective girls. Dr. Otis says: "Many sins are laid at the door of defectiveness, but mental defect does not explain everything. The reverse might rather be said to be the truth. Some of the girls indulging in this love for the colored have, perhaps, the most highly developed intellectual ability of any girls of the school."

SEXUAL MORALS IN CENTRAL ASIA

In Kashgar, in Central Asia, the women have few scruples with regard to sexual and marital relations. According to Cobbold¹¹ an outsider arriving in Kashgar engages a go-between to find him a partner of youth and beauty, which qualifications are regarded as marketable. The formal preliminaries being concluded the pair are solemnly united according to Mahomedan law before the Mullah, but at the same time as the marriage takes place a divorce contract is signed in which is named a sum to be paid by the man on the termination of the relation. At this time the girl returns to her relations and the same performance is repeated, often many times. It will be seen that this is a modified form of concubinage.

¹¹ RALPH P. COBBOLD. *Innermost Asia*. New York, 1900, p. 76.

SPECIAL ABSTRACTS

THE FORMATION OF URINARY STONES

By PROF. CARL POSNER

POSNER attempts to formulate some of the facts and problems of stone formation. The first (earliest) contribution to our knowledge of the subject was the observation that the constituents of urinary stones crystallize in an entirely different manner when they form calculi from what they do when they are precipitated free from the urine. In other words we can no longer look upon a calculus as a conglomeration of individual crystals. In this connection Roberts has shown that the ordinary envelope-shaped crystals of calcium oxalate are very weakly polarizing whereas the calcium oxalate of calculi is very strongly polarizing, as are also the irregular forms (dumb-bells) found free in the urine.

What is responsible for these two entirely different types of crystallization? It has been suggested that the adoption of one or the other form depends upon the presence of an organic framework or cement substance. Such a skeleton is easily demonstrable in any calculus by dissolving out the crystalloid and by staining with eosin. This brings out clearly the concentric layering of the stone. On the other hand it has been claimed by various observers that in every instance of crystallization some of the protein which is always present in every urine diffuses into the crystal and that therefore we have in this phenomenon nothing characteristic for lithogenesis. Nevertheless the very latest work seems to show that the decomposition [i. e., "gelatinization." See next paper of Lichtwitz.—Ed.] of colloids (whether organic or inorganic) decreases the solubility of many urinary constituents and thus favors precipitation. Kleinschmidt claims that even normal urine contains sufficient protein to serve as a basis for the colloid framework of calculi above referred to.

Posner lays special stress on the presence of the so-called *nubecula* in almost every normal urine. These are very transparent structures—compounds of nucleic and chondroitin-sulfuric acid with protein—not readily demonstrable by the ordinary methods but easily recognized with the aid of the dark field illumination. The author has often noticed phosphate and oxalate precipitates imbedded in these nubecula. There are two possible explanations for this association. Either the salts, during excretion, irritate the mucous membrane to a greater production of

nubecula or else the nubecula play a part similar to that of Naunyn's "Eiweissflocke" in the formation of gall-stones, and by their very presence cause the precipitation of the salts. There seems indeed to be a general tendency to salt precipitation wherever necrobiotic protein is present (cf., the calcium infiltration secondary to colloid coagulation, hyaline or cheesy degeneration).

The distinction between the inflammatory and the non-inflammatory origin of stones is not a fundamental one, according to the author, since bacteria cannot be regarded any longer as the specific cause of calculi but should be regarded either in the form of inclusions or as secondary invaders.

A constitutional diathesis may be assumed to operate in the case of cystin stones, but it cannot be invoked in every instance as all sufficient for the etiology, for we could not on such a basis explain the production of a xanthin stone in one kidney and a uric acid stone in the other kidney of the same patient. In other words we are forced to invoke the aid of local causes. Local inflammatory changes are very definitely associated with the formation of ammonium urate and ammonium—magnesium—phosphate stones which depend on the ammoniacal decomposition of urine. But then many cases of calculosis are not associated with change in the reaction of the urine and yet on the other hand the urine must keep on changing in some way, if not in reaction, as is evinced by the many different layers shown by some of the stones.

Microscopic examination alone is generally sufficient to distinguish the layers when use is made of the polarization-microscope and the dark field illumination. Studies of the structure of calculi made by these methods reveal the presence of two general types which have been named the "irregularly crystalline" and the "regularly concentric." Of course mixed forms are very common. For these observations thin sections of stones are made use of.

Posner goes into the structure of hard substances throughout the animal kingdom in general. He distinguishes two forms of structure. In the first place we have the secretion of a soft substance which subsequently hardens. This occurs in the chitin coats of the arthropoda. In the other form we have a deposit of calcium salts in layers demarkated by organic matter. In this way are formed the shells of the mollusca, egg-shells, fish-scales, and otoliths. The formation of this latter group is therefore very similar to that of urinary calculi.

In conclusion the author again emphasizes the importance

of the part played by urinary colloids in stone-formation and suggests that the empiric benefits observed from drink cures resulted largely from a dilution of these substances as well as from the secondary effects of change in urinary reaction (when salts were prescribed), and increased diuresis. It is the laboratory, says Posner, to which we are to look for the explanation of the pathology of urinary stones upon which our successful therapy of the future will be based.

THE FORMATION OF URINARY GRAVEL AND STONES

By DR. L. LICHTWITZ

There is a fundamental difference between the solubility of various substances in urine and in water. Thus, uric acid and its salts and calcium oxalate are very much more soluble in urine, in which they exist in supersaturated solution, than would correspond to their solubility in water. Moreover in an aqueous medium, a substance can exist in a supersaturated solution only when it is not present as a solid at the bottom of the fluid. The very slightest trace of the solid will cause a precipitate which will increase steadily to a maximum. This maximum is reached when the supernatant fluid is just saturated with the substance in solution. On the other hand the facts are different in the case of the urine. Thus, if there is a sediment of uric acid present the concentration of that substance in the urine may still be many-fold what it could be in pure water. For example, a strongly acid urine with uric acid sediment may contain from 14 to 28 mg. of this substance in 100 c.c. whereas an aqueous solution of the same acidity will hold less than 2 mg. of uric acid in the same amount of fluid. This is also true of sodium biurate and of calcium oxalate. Calcium phosphate, however, apparently forms an exception to this rule. Incidentally the solubility of this substance is much less dependent upon the reaction of the urine than has generally been believed.

On what does this peculiar supersaturated state of the various urinary constituents depend? It has been assumed that certain urinary salts are "stabilized" by the presence of others, but this belief is now exploded. Can it be that instead of being in a simple solution the various urinary salts exist in a colloid state? Attempts to answer this question have involved the use of dialysis experiments. The argument has largely hinged about the possibility of the coexistence of the urinary salts as colloids and in

true solution. This problem has been attacked by the aid of the principle of compensation dialysis. This principle is applied as follows: the solution to be investigated is separated from an aqueous solution of similar concentration by a semipermeable membrane. If a part of the substance to be tested exists in a colloid state the diffusion current must flow toward the solution to be tested. It has been shown by this means that the uric acid does not exist in the urine in a colloid state. We must therefore look to the *colloid constituents of the urine themselves*, says Lichtwitz, for an explanation of the abnormal solubility relations obtaining in this fluid.

Let us now consider the solubility conditions of the urinary colloids. When a colloid exists in its finest state of subdivision it is known as a *sol*. This state is labile. By an enlargement of its constituent particles it falls out as a precipitate. This precipitate may be *reversible*, i.e., by the action of various agents, for example, heat, it may return into the sol condition, or it may be *irreversible*. The colloids in the urine may exist as sols, or as reversible or irreversible, visible precipitates—*gels*. Thus urines have been observed which were very viscous, which appeared “stringy” on pouring from one vessel to another, and which became full of thick, white flocculi on standing. Furthermore, urines in the declining stage of acute nephritis, although they may not contain albumen in solution, are often clouded with thin, fine, flocculi which pass through filters and are not soluble in acids or alkalis. Finally, casts, and nubecula are in all probability a result of this gelatinization process.

Now, it has already been shown for uric acid, sodium biurate, and calcium phosphate that their solubility depends directly upon the solubility conditions of the urinary colloids. Thus, as regards the last named salt, it is known that an alkaline urine such as in phosphaturia, soon shows on standing, a pellicle in its surface, which is also visible at the sides of the vessel, at the point of contact between urine and glass. This pellicle consists of a colloid which accumulates at the surface of the fluid, lowering the surface tension, and owing to the increased concentration at this point, becomes gelatinized. This colloid, as it happens, is soluble in ether so that when a fresh weakly alkaline urine is shaken with this reagent the colloid is removed from the solution, whereupon there appears, almost immediately, a fine flocculent precipitate of calcium phosphate. In this way the urine has been

deprived, artificially, of its "protective" colloid ("Schutzkolloid" of Lichtwitz) and we have reproduced the conditions which exist when an alkaline urine shows a colloid pellicle on its surface and a phosphate precipitate on the bottom.

It is this principle, furthermore, which explains the appearance of mixed precipitates in urines, combinations of salts whose simultaneous existence would be inexplicable on purely chemical grounds. It may be pointed out incidently, that under the above conditions the gelatinization of the colloid causes the urine to assume the solubility conditions of an aqueous solution. Thus if we dialyze urine so as to separate the colloids from the crystalloids and then evaporate the dialyzate (free from colloid) to the volume of the original urine, both calcium phosphate and calcium oxalate will be precipitated simultaneously. In this connection it may be asked why all the urinary salts (existing as they do in a supersaturated solution) do not precipitate out when the colloid gelatinizes. The answer to this is that in all probability the various urinary salts are each dependent upon specific colloids, it having been shown, for example, that the ether-soluble colloid effects only the solubility of the phosphates.

Lichtwitz believes that this interdependence between the stone-building salts and the urinary colloids begins as far back as the secretion in the kidney cells.

So far the author has dealt only with the subject of sediment formation in the urine. We all know, of course, that the mere presence of sediment in the urine, even when this exists for many years, does not necessarily mean the formation of calculi. For this purpose the sediment particles must assume the property of adhering together and this can be brought about either by a change in the walls of the urinary tract, or by a change in the urine itself. The laws governing the changes in surface tension between fluids and solids are not so well understood that we can say much definitely from theoretical considerations, but we know from practical experience that a change in the walls of the urinary passages such as a tumefaction, or a loss of epithelium will offer a surface much more favourable for coating with urinary sediment than would a normal mucosa. Moreover, if under such circumstances a single crystal gets caught, it may very well form the nucleus of a calculus. That the growth of a stone about a nucleus is a physical and not a chemical phenomenon is obvious when we recall that not only urinary salts, but also bacteria, blood

clots, distoma eggs or any other kind of foreign body may be the starting point of a calculus. We have already seen how a pellicle results from the gelatinization of the colloid on the surface of the urine in contact with the air or glass. In the case of a calculus, exactly the same colloid-gelatinization takes place at the point of contact between urine and foreign body. This gelatinization takes place in the form of concentric layers which have long been demonstrated in every crystal and stone as the colloid framework.

How are these colloid layers transformed into a stone? In the first place we know that it is by no means uncommon to find precipitates to occur in nubecula, in mucus threads, in spermatozoa. Besides, we are familiar with the phenomenon of calcification throughout the body wherever, through some degenerative process, the protoplasmic colloids have been precipitated and thus become deprived of their protective action (e. g., as in hyaline, fatty or caseous degeneration). Perhaps the prettiest example, however, of how a colloid gel becomes calcified, is seen in the pellicle formation in phosphatic urines, already referred to. In such cases, even when there is no phosphate precipitate at the bottom (owing to the retention of sufficient protective colloid in solution), the surface pellicle often becomes visibly filled with crystals. In this manner the pellicle becomes more and more the seat of a crystalline precipitation and a real calcification or calculus formation occurs in concentric layers based on a framework of gelatinized colloid. We do not have so clear a conception of the process which results in radial striation of calculi but we can assume for instance that an amorphous sediment becomes crystalline at one point and that then a growth of the crystal takes place in the direction of the diffusion current.

Lichtwitz does not take much stock in the inflammatory theory of origin of calculi, nor in the theory that calculosis is the result of a diathesis. He believes that the future study and ultimate understanding of the problems of calculus formation will be based entirely on physico-chemical principles and points out that from the knowledge thus far gleaned in such researches we have already two important therapeutic indications: First, we must attempt to increase the urinary excretion of colloids with good "protective" action (e.g., gelatin); secondly, we must cause the ingestion of salts which will favourably influence the solubility of such colloids.

MISCELLANEOUS ABSTRACTS

Collargolum as the Injection Medium in Skiagraphy and Uretero-pyelography.

While by far the greatest majority of American and European radiologists agree that Collargolum, which was first recommended by Voelcker and Von Lichtenberg in 1906 as the most advantageous injection medium into the bladder and renal pelvis, has not been equalled technically by any other material since suggested for this purpose, occasional reports of alleged injury from its use have recently appeared in the literature.

W. F. Braasch of the Mayo Clinic, St. Mary's Hospital, Rochester, Minn., who was the first to extensively apply Voelcker and Von Lichtenberg's technique in the United States and has introduced many valuable modifications and diagnostic possibilities of the same, states in an article on "Recent Progress in Uretero-Pyelography" (*Journal Mich. State Med. Soc.*, April, 1913) that this technique has been employed in the Mayo Clinic in more than one thousand cases without fatality or permanent injury. The occasionally observed colic following examination by this method was not more frequent nor more severe than after ureteral catheterization alone.

It has been his experience that severe reaction following pyelography, is usually the result of errors in technique or lack of care in the selection of the cases. In regard to the latter, careful perusal of Dr. Braasch's article is strongly recommended to all those interested, a short abstract being inadequate to do justice to this part of his report.

The following technical precautions are urged by him:

The Collargolum crystals should be carefully ground in a mortar when put into solution (10%) and the latter filtered, otherwise undissolved crystals may be deposited on the walls of the pelvis and ureter and act as an irritant. The solution should be carefully warmed before injecting, not boiled, since it coagulates with boiling. The solution should be injected by the gravity method, watching the patient for the slightest evidence of pain. From 2 to 8 c.c. will usually suffice unless symptoms of obstruction have been previously noted. A large ureteral catheter should be used so that the injected solution may drain away easily. The apparatus for the X-Ray and the injection should be so arranged that there will be no delay after the catheter is inserted.

The unequalled diagnostic value of skiagraphy and ureteropyelography by means of Collargolum and the innocuousness of the method if carried out correctly, is also vouched for by Dr. George H. Stover, Professor of Roentgenology, University of Colorado (*Annals of Surgery*, June, 1913); Dr. G. Strassmann of the Surgical Polyclinic of Prof. F. Voelcker, Heidelberg, Germany; Prof. Th. Nogier and Dr. J. Reynard of the University of Lyons (*Lyon Médical*, 1912, No. 51); Dr. William I. Bruce, Radiologist to the Charing Cross and the Chil-

dren's Hospital, London (*British Medical Journal*, Oct. 14th, 1911); Dr. E. M. Stanton, Schenectady, N. Y. (*Albany Medical Annals*, July, 1912); Dr. William T. Belfield, Professor of Genito-Urinary Surgery, Rush Medical College (*Journ. A. M. A.*, March 15, 1912); Dr. Lewis G. Cole, Clinical Professor of Radiology, New York Post Graduate Hospital (*The Post Graduate*, Jan., 1911); Dr. N. Nemenow, Chief of Central Roentgen Laboratory, St. Petersburg Medical High School for Women (*Fortschr. auf dem Geb. d. Roentgenstrahlen*, Vol. 18, No. 3) and by a constantly growing number of reports from nearly every civilized country.

Adrenal Hypernephroma with Precocious Development of Sexual Characteristics.

In the recently issued annual volume of "Guy's Hospital Reports" is a brief paper by Dr. Herbert French on a rare condition, of which up to the present less than twenty cases have been recorded, where a tumor of the suprarenal cortex has been associated with abnormal development of the external genitalia and the characteristics of sex. Dr. French's patient was a little girl of six and a half years, who was admitted to Guy's Hospital on August 18, 1910. She had always been a very healthy child, except that since she was twelve months old she had been subject to periodic attacks of vomiting several times a year, attacks which were gradually becoming more intense. In this little girl pubic hair began to develop when she was eight months old, and it increased in amount steadily for some years. There was none in the axillæ or on the face. For six months before admission she complained of pain in the left side of the body. She was found to be a healthy looking child, bright and intelligent, not unduly fat, with undeveloped breasts, but with a remarkable development of pubic hair and with an equally remarkable hypertrophy of the clitoris, which projected between the labia and separated them to a notable extent. A relatively large tumor was felt with ease in the left side of the abdomen, moving up and down with respiration, smooth and free from nodules, but very tender on the slightest pressure. It extended almost to the mid-line, above the umbilicus, and reached from the left hypochondrium into the left flank. There were definite indications that the tumor growth was compressing the lower lobe of the left lung. On September 1st the little patient was operated on, and the mass was found to be a suprarenal tumor, which almost completely surrounded the left kidney, making it impossible to remove one without the other. The suprarenal tumor was of a curious yellow ochre color, very vascular and very soft. Although it was creeping down all over the capsule of the kidney, it did not invade the latter in any way. The kidney itself looked perfectly normal. The child died a few days later, when numerous secondary deposits, all yellow ochre in color, and varying in size from small dots

to growths half an inch in diameter, were found scattered through the lungs. The uterus and ovaries were perfectly normal. Sections of the growth showed columns of large polyhedral cells, mostly arranged in a perivascular fashion. It may be described as a perithelioma of mesoblastic origin rather than a carcinoma.—*Lancet*, Feb., 1913.

Ureteral Defects.

D. N. Eisendrath, Chicago (*J. A. M. A.*), describes experiments made by him to meet the condition sometimes seen where the normal function of a kidney could be saved provided a portion of a diseased ureter could be removed and a substitute for it supplied. Anastomosis of the two ends of the ureter is, he finds, best accomplished by the end-to-side method of Van Hook. The various methods of reimplanting the proximal ends of the ureter into the bladder are not considered here. The former may be successful as is well known. The implantation into the bowel is impracticable on account of the irritant action of the urine on the mucous membrane and the danger of ascending infection through the ureter. A number of methods have been tried experimentally by surgeons to transplant another hollow structure in place of the resected portion of the ureter, but in all cases without success. Either the transplanted section became necrotic or the condition produced a urinary fistula or the transplanted segment became converted into connective tissue and completely obstructed, with resulting hydronephrosis. Eisendrath conceived the idea that possibly a portion of the bladder wall might be resected and made into a tube which could be transplanted to supply the resected portion of the ureter. The results obtained were the same as those with the other methods. In several of the dogs employed a urinary fistula resulted. In six the graft became necrotic and in the others the transplanted bladder segment contracted and became converted into connective tissue. The transplantation itself was practicable. The parts retained their vitality after severance from the bladder and it made no difference whether the divided ends of the ureter were brought into exact end-to-end approximation or not. Although the bladder mucosa is accustomed to the presence of urine it was found that it underwent cicatricial changes the same as the other structures, such as artery, vein, appendix, bowel, etc., which have been employed for this purpose.

[For lack of space the regular Review of Current Literature has been omitted from this issue.]

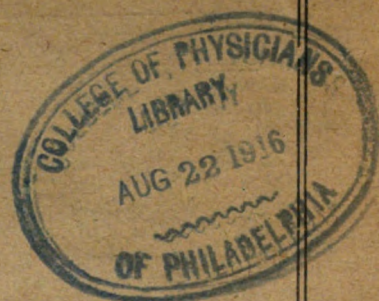
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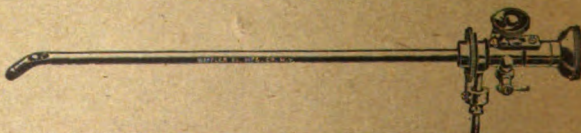
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